3com

VCX™ Administration Guide

V7210 IP Call Processor
V7220 Accounting Suite
3Com Telephones and Attendant Console
VCX Call Records Utility
VCX Complementary Attendant

VCX™ V7000 IP Telephony Solution
System Release 5.2

CONTENTS

4

2   CONFIGURING THE DIRECTORY SERVER

3   **CONFIGURING THE ACCOUNTING SERVER**

4   **CONFIGURING THE CALL PROCESSOR**

5   CONFIGURING TELEPHONES

6   CONFIGURING THE COMPLEMENTARY ATTENDANT

A   CALL PROCESSOR COMMAND LINE INTERFACE COMMANDS

B   MANUALLY CONFIGURING THE AUTHENTICATION SERVER

C   MANUALLY CONFIGURING THE DIRECTORY SERVER

D MANUALLY CONFIGURING THE ACCOUNTING SERVER

E MANUALLY CONFIGURING THE BILLING SUPPORT SERVER

F   COMMON COMMANDS

ABOUT THIS GUIDE

This chapter contains an overview of this guide, lists guide conventions, related documentation, and product compatibility, and describes how to contact Customer Service.

This guide describes how to configure and maintain the following:

- Oracle® database software
- VCX Linux operating system
- VCX™ V7210 IP Call Processor
- VCX™ V7220 Accounting Suite
- 3Com Telephones and Attendant Console
- 3Com Call Records Utility
- VCX Complementary Attendant

This guide is intended for operators and administrators of the system and assumes you have a thorough understanding of telecommunications, VoIP technology, Linux operating system, Oracle databases, network knowledge, and system administrator privileges.

Release notes are issued with some products. If the information in the release notes differs from the information in this guide, follow the instructions in the release notes.

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
i>	Information note	Information that describes important features or instructions
/!\	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
/4\	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen.
`Syntax`	The word "syntax" means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example: To enable RIPIP, use the following syntax: `SETDefault !<port> -RIPIP CONTrol = Listen` In this example, you must supply a port number for <port>.
Commands	The word "command" means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To remove the IP address, enter the following command: **`SETDefault !0 -IP NETaddr = 0.0.0.0`**
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

| **Related Documentation** | These 3Com documents contain additional information about the products in this release that are a part of or support the VCX V7000 IP Telephony Solution and the 3Com Convergence Application Suite. |

The following documents are a part of the VCX V7000 IP Telephony Solution:

- *VCX Installation and Maintenance Guide*
- *VCX Administration Guide*
- *VCX Business Telephone Quick Reference Guide*
- *VCX Basic Telephone Quick Reference Guide*
- *V7000 Telephone Guide*
- *VCX Security Guide*

The following documents are a part of the 3Com Convergence Application Suite:

- *V7350 IP Messaging Suite Product Overview*
- *V7350 IP Messaging Suite Installation Guide*
- *V7350 IP Messaging - 3Com Native Interface AT - A - GLANCE*
- *V7350 IP Messaging Suite User Guide - 3Com Native Interface*
- *V7350 IP Messaging - Traditional Interface AT - A - GLANCE*
- *V7350 IP Messaging Suite User Guide - Traditional Interface*
- *V7350 IP Messaging Suite Operations and System Administration Guide*
- *3Com E-Mail Reader Application ReadMe*
- *V7350 IP Messaging Suite Intelligent Mirroring Guide*
- *IP Conferencing Module Installation Guide*
- *IP Conferencing Module User and Administration Guide*
- *Convergence Center Client User and Administration Guide*

The following documents provide information on products that support this release:

- *Enterprise Management Suite User Guide*, Version 2.0
- *VCX V7111 Fast Track Installation Guide*

- *VCX V7111 VoIP SIP Gateways User Manual*
- *VCX V7122 Gateway Fast Track Installation Guide*
- *VCX V7122 VoIP SIP Gateways User Manua*l

Your Comments   Your suggestions are important to us because we want to make our documentation more useful to you.

Please send e-mail comments about this guide or any of the 3Com Voice Products documentation and Help systems to:

`VOICE_Techpubs_comments@3com.com`

Please include the following information with your comments:

- Document title
- Document part number (found on the front page)
- Page number
- Your name and organization (optional)

Example:

VCX Administration Guide
Part Number 900-0234-01 Rev AA
Page 25

Please address all questions regarding the 3Com software to your authorized 3Com representative.

1

CONFIGURING THE AUTHENTICATION SERVER

This chapter provides information on how to configure the authentication server through the provisioning server. Use the web provisioning server to manage rate plans, patterns, and calls plans and to add and manage users in specific network domains. Also, use the web provisioning server to search users based on select criteria.

> *View no more than 50,000 objects through the provisioning server at a time; otherwise, it could overload the provisioning server.*

> *Be sure to set your Web browser preferences so that the cache is updated when ever you modify or view a new web page.*

Direct Phone to Gateway Dialing

This feature allows for remote survivability and requires no configuration. Sites that do not have a local VCX V7000 IP Telephony Suite can still make calls to each other as well as to the PSTN when the connection to the remote IP Telephony Suite is lost, for instance, because of LAN issues or a down IP Telephony Suite.

Accessing the Authentication Server Interface

To access the authentication server interface through the web provisioning server:

1 From a standard web browser, log into 3Com VCX 7000 main web page, which is usually *http://<IP address of VCX 7000 server>/voipadmin*.

2 Click *VCX Administrator Interface* and log in.

3 At the top of the main page of the web provisioning server, click *Users*.

The *3COM Voice Core Exchange Authentication Server* main page appears. See Figure 1.

Figure 1   Authentication Server Main Page
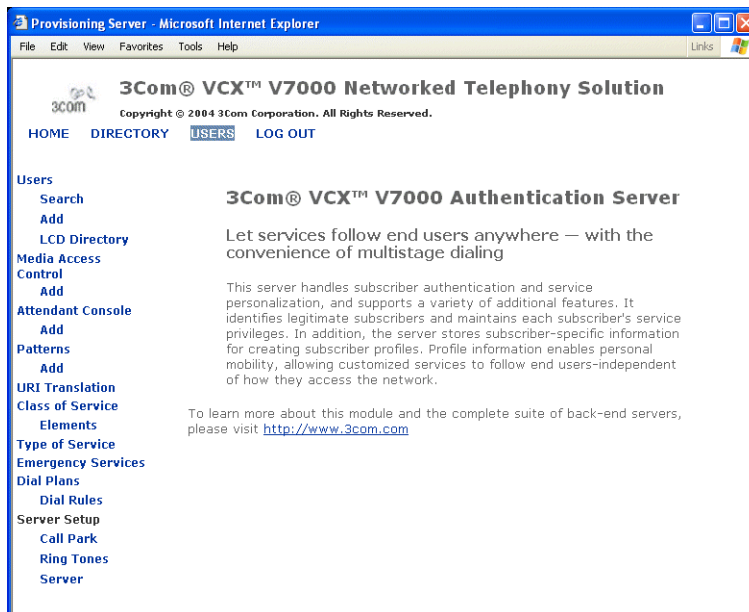
Configuring End Users	Use this feature to add and manage end users and end user phones. Make searches to manage the URI addresses, call plans, and call plan details associated with a specific end user. End user profiles can be added, deleted, or modified.

Adding End Users

To add a new end user profile:

1 Under the *Users* heading, click *Add*. See Figure 1.

The *Add User* page appears.

The *Add User* page contains three editable sections:

- **Personal Information**—full name and date of birth
- **Address**—address of your location
- **Web Login Information**—web login username and password

2 Fill in the three sections on the *Add User* page. See Figure 2.

Figure 2 Add User Window

3 In the *Personal Information* section, edit the following fields and use the examples in Table 3 as a guide:

Table 3   Adding Personal Information

Field	Description	Example	Required?
Title	The social title of the new user	Miss, Mr., Mrs., Ms.	No
First Name	The first name of the new user	Jane, John	Yes
Middle Name	The middle initial of the new user.	A., B., C., D.	No
Last Name	The last name of the new user.	Doe, Roe	Yes

4 In the *Address* section, edit the following fields and use the examples in Table 4 as a guide:

Table 4   Adding Address Information

Field	Description	Example	Required?
Street-1	The first line for the home address of the new user.	1234 University St.	Yes
Street-2	The second line for the home address of the new user. Use this field for apartment/unit numbers or P.O. Box numbers.	P.O. Box 5678	No
City	The city for the home address of the new user.	Chicago	Yes
State/ Province	The state/province for the home address of the new user.	IL	Yes
Country	The country for the home address of the new user.	NANP (US, Canada, & Caribbean)	Yes
ZIP Code	The ZIP Code or Postal Code for the home address of the new user.	12345-6789	Yes

5 In the *Web Login Information* section, edit the following fields and use the examples in Table 5 as a guide:

The end user will use their web login username and password to access their phone online from the Calling Features User Interface.

Table 5 Adding Web Login Password

Field	Description	Example	Required?
Login Name	The unique web login name for the new user.	JOHN	YES
Password	The unique password for the new user.	123ABC	Yes
Confirm Password	The unique password for the new user. Simply type the login password again for verification purposes. *Note*: If the password and confirmation do not match, an error appears.	123ABC	Yes

6 When you are finished, click *Save*.

Viewing All End Users To view all end user profiles:

1 From the left-hand side of the main page, click the *Users* heading.

The *Users* page appears.

Each row on the *Users* page contains six columns of information for each end user. Table 6 lists each column and describes the type of information available in that column.

Table 6 Users Page—Columns of Information

Column	Description	Sample Content
Selection	Use this column to select multiple users. This is useful when deleting multiple users.	N/A
Login Name	This column contains a link which allows you to edit the personal information for an existing end user.	JOHNTEST
Name	This column contains the first, middle, and last names of an existing end user (as entered in the **Add User** page). This field is not editable.	John T. Smith
Phones	This column contains a link which allows you to view and add phones to an existing end user.	N/A

(continued)

Table 6   Users Page—Columns of Information (continued)

Column	Description	Sample Content
Actions	This column contains three actions you can perform for each end user:	N/A
	■ **Add Phone**—use this to add a phone to an existing end user	
	■ **Clone**—use this option to clone an existing end user	
	■ **Delete**—use this option to delete an existing end user	

2 Use the *Users* page to manage phones and other end user-specific features.

Searching for End Users   To search for specific end users:

1 Under the *Users* heading, click *Search*.

The *Search Users* page appears.

2 Use the following case-sensitive fields to search for specific users:

■ First Name

■ Last Name

■ Login Name

■ Phone Address

i> *To search for all users, leave the search fields empty.*

3 Click *Search*.

i> *To clear all of these fields, click Reset.*

The *Users* pages appears.

4 View and edit end user profiles according to your customized needs.

**Editing End User
Profiles**

To edit an end user profile:

1 Click the *Users* heading.

The *Users* page appears.

2 In the *Login Name* column, click the login name of the end user you want
to edit.

The *Edit User* page appears.

3 Make the necessary changes for this end user.

4 Click *Save*.

The *Users* page reappears with the changes saved for this end user.

Cloning End Users   Clone an end user to save time. The cloning feature only clones basic end
user information, not specific phone features. This feature is particularly
useful when you are adding several users from the same geographical
region.

To clone an end user:

1 Search for the particular end user you want to clone.

See Searching for End Users on page 24.

2 From the *Users* page, click *Clone* in the *Actions* column.

The *Edit User* page appears.

3 Edit the fields with new information for the cloned end user.

4 Click *Save*.

The *Users* page appears with the cloned end user listed.

Deleting End Users   Use the administration provisioning server to delete one or more end user profiles.

Deleting One End User

To delete one end users:

1 Search for the particular end user you want to delete.

See Searching for End Users on page 24.

i▷ *If a phone exits for the user, delete the phone before deleting the user.*

2 From the *Users* page, click *Delete* in the *Actions* column.

The *Users* page refreshes, showing the new list of end users.

Deleting Multiple End Users

To delete multiple end users:

1 Search for the particular end users you want to delete.

See Searching for End Users on page 24.

i▷ *If a phone exits for the user, delete the phone before deleting the user.*

2 From the *Users* page, select the checkbox preceding each end user you want to delete.

3 At the top of the *Users* page, click *Delete Selected*.

The *Users* page refreshes, showing the new list of end users.

| **Configuring User Phones** | Use the provisioning server to add, delete, and modify phones profiles for an existing user. Also, use the provisioning server to customize calling features for an existing user. |

Adding Phones   To add a new phone for an existing end user:

1 Search for a particular end user.

See "Searching for End Users" on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears. See Figure 3.

Figure 3   User Phones Window

3 From the *User Phones* page, click *Add Phone*.

The *Add Phone* page appears. See Figure 4.

Figure 4   Add Phone Window

4 Fill out the fields according to the descriptions in Table 7.

The *Add Phone* field descriptions are as follows:

Table 7   Add Phone Field Descriptions

Field	Description
Name	Indicates the unique name for the phone.
	For example:
	Home Office
Status	Indicates the status of the phone. End users can only make calls on a particular phone if it is enabled.
Phone Address	A unique phone address.
	Use the **sip:<user_extension>@<host_name>** format for this field.
	For example:
	sip:2222@192.1.1.1
Phone Password	Indicates the unique password for the phone and is used for phone registration.
	Note: The first digit of the password cannot be the number zero.
Confirm Password	Confirms the unique password for the phone.
Max Allowed Contacts	Use this field to configure a maximum number of SIP contacts, or phone registrations, for a particular phone. End users can register at multiple phones so that they can access all of their customized calling features. An end user cannot exceed the maximum number of SIP contacts.
	Also, the SIP contacts are prioritized based on the customized configuration of the phone. For more information about SIP contacts, see "Adding Phone Registrations" on page 40.
Registration Interval (sec)	How often a registration message is sent to server to see if it is active.
Registration Required	Click if you want registration to be enabled.
Out Bound Proxy	■ IP — IP address of the out bound proxy.
	■ DNS — DNS of the out bound proxy.
	■ Port— Port number of the out bound proxy.

(continued)

Table 7   Add Phone Field Descriptions (continued)

Field	Description
Date Time Format Display	Indicates the format of the phone's LCD. An example of what each format would like is provided.
	■ **MMM dd HH:mm** — Nov 07 16:20
	■ **MMM dd hh:mm a** — Nov 07 04:20 AM or Nov 07 04:20 PM
	■ **MM dd HH mm** — 11/07 16:20
	■ **MM dd HH mm** — 11/07 04:20 AM or 11/ 07 04:20 PM
	■ **dd MMM HH mm** — 07 Nov 16:20
	■ **dd MMM hh mm a** — 07 Nov 04:20 AM or 07 Nov 04:20 PM
	■ **dd MM HH mm** — 07/11 16:20
	■ **dd MM hh mm a** — 07/11 04:20 AM or 07/11 04:20 PM
Local Time Zone	Time zone of where the server is located.
	Note: Daylight savings is not automatically set so you need to set a specific time zone from the drop-down menu.
Display Name	The name to be displayed on the phone's LCD.
Number of Lines	The number of lines on the phones, varies by type of phone.
Music On Hold Server	Address of the Music on Hold server.
	For example:
	8475551212
Domain Ring Tone	The type of ring tone you want to hear for phone calls within your network domain, which use Caller ID.
Anonymous Ring Tone	The type of ring tone you want to hear from anonymous phone calls.
Other Ring Tone	The type of ring tone you want to hear for phone calls outside your network domain, which use Caller ID.
Voice Mail Server	Address of the voice mail server, where your phone connects to so you can hear your voice mail messages.
	For example, it is the UMS pilot number.
Class of Service	Indicates what phone numbers an end user is allowed to either place or receive. The phone numbers are bundles into a Class of Service, which are configured in the "Configuring Class of Service" section on page 60.

(continued)

Table 7 Add Phone Field Descriptions (continued)

Field	Description
Type of Service	Indicates what feature bundle is assigned to the phone. Type of Service bundles are configured in the "Configuring Type of Service" section on page 65.
Dial Plan	Dial plans are comprised of individual or bundled dial rules and are configured in the Configuring Dial Plans. Once dial plans are associated with a phone, the configured phone numbers no longer require an end user to press OK to place a call.
Call Center Names	Identifies all of the Call Centers the end user should be assigned to. If there are multiple Call Centers for an end user; separate each Call Center with a comma.
Location/Comment	This field is listed when a user lists all the phones in the LCD directory. You can provide specific information you want listed such as the phone location.
Exclude from LCD Directory	To prevent phones from being listed in the LCD Directory, check the checkbox.

5 Click *Save*.

The *User Phones* pages appears, showing the new phone.

Deleting Phones from a User

When you delete a phone that is associated with an attendant console, the attendant console configuration is also deleted. To prevent from losing an attendant console configuration, first edit the associated phone address for the attendant console so it does not use the same phone address as the phone you want to delete using the instructions in "Editing Attendant Console Basic Information" on page 54.

To delete a phone from a user:

1 Search for a particular end user.

See "Searching for End Users" on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column for the end user you want to delete a phone from.

The *User Phones* page appears.

3 Click the checkbox preceding the *Name* column in the same row as each phone you want to delete.

4 Click *Delete Selected*.

The *User Phones* page reappears verifying the phone was deleted.

Adding Phone Features   To add phone (calling) features for an existing phone:

1 Search for a particular end user.

See "Searching for End Users" on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 In the *Actions* column, click *Features*.

The *Assigned Phone Features* page appears.

4 From the *Assigned Phone Features* page, click *Add Features*.

The *Add New Phone Features* page appears.

Table 8 lists all of calling features available for a particular phone.

Table 8   Calling Features for Phones

Calling Feature	Description
Call Forward Busy	Use this feature to redirect incoming calls when this phone is busy. If the end user has multiple lines on this phone, the busy is defined as all lines exhausted with existing calls. The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).
Call Forward Ring No Answer	Use this feature to redirect incoming calls when this phone rings for a specific time period (in seconds). The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).
Call Forward Universal	Use this feature to redirect all incoming calls. Use this feature when the end user is away from the phone for an extended period of time. The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).

(continued)

Table 8   Calling Features for Phones (continued)

Calling Feature	Description
Caller Identity	This feature configures the following features:
	■ Calling Number Delivery—Use this feature if the phone supports the caller ID display feature. If so, the phone light emitting diode (LED) will display the number for incoming calls.
	■ Calling Name Delivery—Use this feature if the phone supports the caller ID display feature. If so, the phone light emitting diode (LED) will display the name for incoming calls.
	■ Call Identity Suppression Universal—Use this feature to make a call from a phone without delivering the callee's name and phone number to any other phone. The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).
	■ Enable Call Identity Suppression Per Call—When enabled, this feature allows an end user to make a single call from their phone WITHOUT delivering their name and phone number to another phone. Use this feature on a per call basis by dialing the appropriate access code before dialing the actual phone number. This feature overrides Call Identity Suppression Universal if it is enabled. The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).
	Note: In order for this feature to immediately take affect, you need to log out of the telephone and then log back in, otherwise; the feature will not take affect until the phone's configured registry timer setting has elapsed.
	■ Disable Call Identity Suppression Per Call—Enable this feature to allow end users to make a single call from their phone WITH delivering their name and phone number to another phone. Use this feature on a per call basis by dialing the appropriate access code before dialing the actual phone number.This feature overrides Call Identity Suppression Universal if it is enabled. In the access code field, enter an access code in the format of *67. The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).

(continued)

Table 8   Calling Features for Phones (continued)

Calling Feature	Description
Speed Dial	When making a call, use a speed dial to provide short-cut dial strings for frequently used phone numbers. The access codes are automatically assigned. Users are assigned 12 speed dials with access codes *11 through *22.
	Speed dial phone addresses should <u>not</u> use the *sip:<telephone_extension>@<IP Address of host server>* format. Enter a speed dial phone number as just a number such as 1000.
Voice Mail Address	Use this feature to configure the desired voice mail servers for this phone. You can configure up to three voice mail servers.
	Using this feature requires the phone to be subscribed to a voice mail system.
	Also, configure the voice mail indicator used for supported phones:
	Audio—Use this feature if end users want an audio indicator to notify them when receiving new voice mail messages.
	Visual—Use this feature if end users want a visual indicator to notify them when receiving new voice mail messages.
	Both—Use this feature if end users want both audio and visual indicators to notify them when receiving new voice mail messages.
	Note: In addition to sending a standard Voice Mail Notification, the SIP Proxy can inform a SIP Phone of the type of indication to use (Audio, Visual, or Both) with a 3Com proprietary SIP header. SIP phones can be developed to integrate with the 3Com proprietary SIP header so they can be provisioned using the Calling Features User Interface. For phones that do not recognize 3Com proprietary SIP headers, the indication type needs to be configured on the phone itself.
Directed Call Pickup	By enabling this feature and creating a security code, a user can answer their own telephone from another desk. To answer the call a person uses an access code from any telephone within the network domain, enters their security code (end user defines), and then enters the extension number of the ringing phone. This transfers the call to the telephone they are on. The access code must be within the range of 10 through 99 and the first digit must be an asterisk (*).

5 Select the checkbox in front of the features you want to add and click *Add Selected*.

A confirmation dialog box appears.

6 If you are satisfied with your selection, click *OK*.

> **i** *If adding the Enable Call Identity Suppression feature, in order for this feature to immediately take affect, you need to log out of the phone and then log back in, otherwise; the feature will not take affect until the phone's configured registry timer setting has elapsed.*

The *Assigned Phone Features* page reappears showing the new list of phone features.

Editing Phone Features

To edit calling features for existing phones:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 In the *Actions* column, click *Features*.

The *Assigned Phone Features* page appears.

4 In the *Actions* column, click *Edit Feature* next to the feature you want to edit.

The *Edit Feature* page appears for that particular phone feature. This page changes depending on the feature you choose to edit.

5 Configure each phone feature according to the descriptions in Table 9.

The *Edit Feature* field descriptions are as follows, depending on the feature:

Table 9   Edit Phone Features Field Descriptions

Feature	Format	Default Access Code
Caller Identity	■ Calling Number Delivery—N/A	N/A
	■ Calling Name Delivery—N/A	N/A
	■ Call Identity Suppression Universal—N/A	*83
	■ Enable Call Identity Suppression Per Call—N/A	*82
	■ Disable Call Identity Suppression Per Call—N/A	*67
Call Forward Busy	Use the *sip:<user_name>@<host_name>* format for the *Phone Address* field.	*74
Call Forward Ring No Answer	Use the *sip:<user_name>@<host_name>* format for the *Phone Address* field.	*76
	The *Time Out, seconds* field is the time (in seconds) for which the phone will ring before being forwarded to the forwarding phone address. A typical setting for this field is *15*.	
Call Forward Universal	Use the *sip:<user_name>@<host_name>* format for the *Phone Address* field.	*72
Directed Call Pickup	N/A	*52
Speed Dial	The standard format for all access codes is ***##**, for example *11. The access codes are automatically assigned. Users are assigned 12 speed dials with access codes *11 through *22.	*11 through *22
	When the *Busy Lamp Flash* (BLF) box is enabled (checked), the lamp next to that speed dial on the phone will be lit when the phone mapped to the configured speed dial is in use.	
	Add a unique name for each speed dial number.	
	SIP URI address for the phone using this speed dial.	
Voice Mail Address	Use either an IP address *<x.x.x.x>* or *<mail.sip.host_name>* format for the *Address 1, Address 2*, and *Address **3*** fields.	N/A
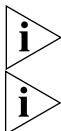
i⟩ *To reset any of these fields to their original setting, click Reset.*

i⟩ *Access codes precede actual phone numbers in a typical dial string. To use calling features requiring access codes, simply dial the appropriate*

access code before dialing the actual phone number. The standard format for all access codes is ***##**, *for example *77.*

6 Click *Update* to save your settings.

7 Click *Cancel* to return to The *Assigned Phone Features* page.

Deleting Phone Features

To delete one calling features for an existing phone:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 In the *Actions* column, click *Features*.

The *Assigned Phone Features* page appears.

4 In the *Actions* column, click *Delete Feature* next to the feature you want to delete.

Adding Phone Restrictions

Use call restrictions to block specific incoming and outgoing call patterns for a specific phone. These are commonly referred to as black (block) and white (allow) lists. You can configure black and white lists for both incoming and outgoing calls.

If the incoming or outgoing number matches both the black list and the white list (for example, if 847* is configured for black list and 847262* is configured for white list), the black list always takes precedence.

The standard format for all dial patterns is *<number pattern>**, for example 900*.

To add restrictions to an existing phone:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Call Restrictions* in the *Actions* column.

The *Restrictions* page appears.

4 From the *Restrictions* page, click *Add Phone Restriction*.

The *Phone Restrictions* page appears. See Figure 5.

Figure 5   Phone Restrictions Window
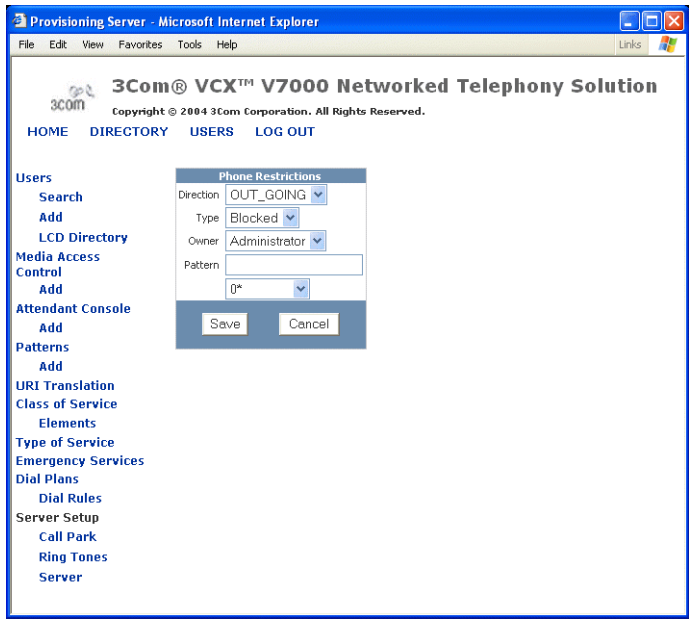
5 Fill out the fields according to the descriptions in Table 10.

The *Phone Restrictions* field descriptions are as follows:

Table 10   Phone Restrictions Field Descriptions

Field	Description
Direction	Configure the phone restriction direction using one of the following:
	■ OUT_GOING
	■ IN_COMING
Type	Configure the phone restriction type using one of the following:
	■ Blocked
	■ Allowed

(continued)

Table 10 Phone Restrictions Field Descriptions (continued)

Field	Description
Owner	Configure the phone restriction owner using one of the following: ■ EndUser ■ Administrator ***Note***: Phone restrictions owned by the Administrator will not be seen by the end user (from the Calling Features User Interface).
Pattern	Use the drop-down menu to select a previously used pattern or type in a new pattern. For more information, see Configuring Patterns.

6 Click *Save*.

The *Restrictions* page appears showing the new phone restriction.

7 Click *Cancel* to return to The *User Phones* page.

Adding Anonymous Call Restrictions

Use anonymous call restrictions to block incoming calls without defined patterns for a specific phone. With this feature incoming calls with Identification Protection are blocked. This feature reduces anonymous calls since the person that calls must allow their number to be identified in order to communicate with you.

To add an anonymous phone restrictions to an existing phone:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Call Restrictions* in the *Actions* column.

The *Restrictions* page appears.

4 From the Restrictions page, click *Add Anonymous Call Restriction*.

5 An anonymous call restriction is automatically configured and added to the *Restrictions* page.

Deleting Phone Restrictions   To delete restrictions for an existing phone:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Call Restrictions* in the *Actions* column.

The *Restrictions* page appears.

4 In the *Actions* column, click *Delete* next to the restriction you want to delete.

Adding Phone Registrations   Use this feature to add phone registrations, or SIP contacts, for a particular phone. This features allows end users to register at multiple phones so that they can access all of their customized calling features. Also, end users can have multiple SIP contacts which are prioritized based on their customized needs. End users cannot exceed the maximum number of SIP contacts. For more information about the maximum number of SIP contacts allowed, see Table 7.

End users can monitor their SIP contacts using the Calling Features User Interface.

To add phone registrations to an existing phone:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Registrations* in the *Actions* column.

The *Phone Registrations* page appears.

4 From the *Phone Registrations* page, click *Add Registration*.

The *Add Registration* page appears. See Figure 6.

Figure 6   Phone Registration Window
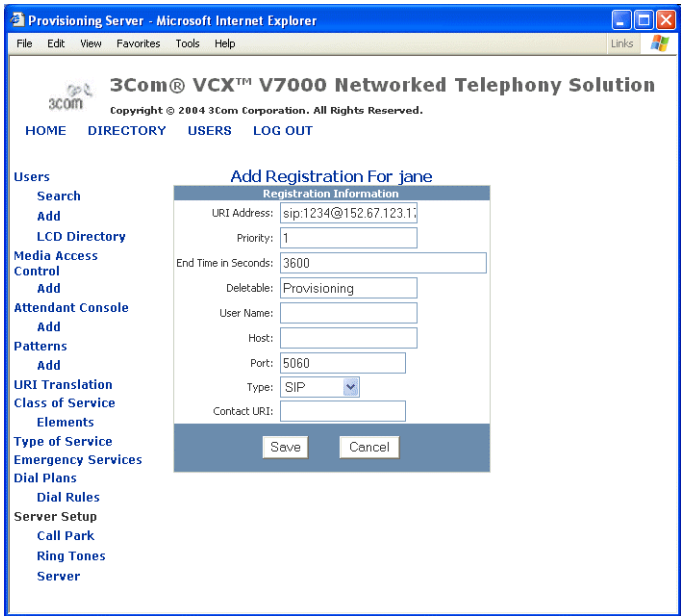
5 Fill out the fields according to the descriptions in Table 11.

The *Add Registration* field descriptions are as follows:

Table 11   Add Registration Field Descriptions

Field	Description
URI Address	This is the URI address of the home phone. This field is not editable. For example, *sip:<telephone_extension>@<IP Address of host server>*.
Priority	If end users have multiple SIP contacts, use this field to prioritize them.
End Time in Seconds	Use this field to set the time limit for an inactive SIP contact.
Deletable	Provisioning means that the SIP contact is static. This field is not editable.
User Name	User name for a particular SIP contact.
Host	Host IP address or DNS server for a particular SIP contact.
Port	The phone port for a particular SIP contact. A typical phone ports is 5060.

(continued)

Table 11 Add Registration Field Descriptions (continued)

Field	Description
Type	Choose the type of SIP contact: ■ UnKnown ■ SIP ■ SIPS ***Note:*** SIPS is used for future implementations only.
Contact URI	This is an optional field to be used in the SIP Registration message.

6 Click *Save*.

The *Phone Registrations* page appears showing the new phone registration.

7 Click *Cancel* to return to The *User Phones* page.

Viewing Phone Registrations

To view the phone registrations for an existing SIP device:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Registrations* in the *Actions* column.

The *Phone Registrations* page appears.

The *Phone Registrations* page contains 11 columns of information available for each phone registration.

Table 12 lists each column and describes the type of information available in that column.

Table 12 Phone Registrations Page

Column	Description
☐	Use this checkbox to delete more than one phone registration at a time. If a box is checked, and then the **Delete Selected** button is clicked, all of the selected phone registrations are deleted.

(continued)

Table 12   Phone Registrations Page (continued)

Column	Description
URI Address	This field contains the URI address for a particular phone registration.
Priority	This field contains the registration priority for a particular phone registration.
End Time	This field contains the expiration time for a particular phone registration.
Deletable	This field indicates whether the phone registration is a Provisioning (static) or Dynamic contact.
User Name	This field contains the user name for a particular phone registration.
Host	This field contains the host IP address for a particular phone registration.
Port	This field contains the port number for a particular phone registration.
Type	This field indicates what type of phone registration this is.
Contact URI	This field indicates what is to be used in the SIP Registration message.
Action	Delete an individual phone registration from this column.
	Note: Deleting a phone registration de-registers the device from the SIP proxy server.

> **i** *When a SIP device de-registers from the SIP proxy, the device is not automatically deleted from the **Sip_Registration** run-time table until an internal job deletes the expired contact. This job runs once an hour.*

4 Click *Cancel* to return to the *User Phones* page.

Viewing Call History   To view the call history for an existing SIP device:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears, see Figure 7.

3 From the *User Phones* page, click *Call History* in the *Actions* column.

The *Call History* page appears.

Figure 7   Populated Call History

Provisioning Server - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help   Links

3com

3Com® VCX™ V7000 Networked Telephony Solution
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HOME   DIRECTORY   USERS   LOG OUT

Users
   Search
   Add
   LCD Directory
Media Access Control
   Add
Attendant Console
   Add
Patterns
   Add
URI Translation
Class of Service
   Elements
Type of Service
Emergency Services
Dial Plans
   Dial Rules
Server Setup
   Call Park
   Ring Tones
   Server

Call History

Caller Address	Calling Address	Start Time (YYYY-MM-DD hh:mm:ss)	End Time (YYYY-MM-DD hh:mm:ss)	Duration (hh:mm:ss)	Features Used
8475554002	4004	15499-11-29 22:58:59.0	2004-05-14 17:52:15.0	0: 0: 0	
8475554002	8475554004	2004-05-14 17:52:31.0	2004-05-14 17:52:32.0	0: 0: 1	
8475554002	9472624002	2004-05-14 17:52:43.0	2004-05-14 17:52:45.0	0: 0: 2	
8475554002	8475554007	2004-05-14 17:52:02.0	2004-05-14 17:52:05.0	0: 0: 3	
8475554002	4007	15499-11-29 22:58:59.0	2004-05-14 17:57:23.0	0: 0: 0	
8475554002	4001	15499-11-29 22:58:59.0	2004-05-14 17:57:35.0	0: 0: 0	
8475554002	4004	2004-05-14 18:04:46.0	2004-05-14 18:04:47.0	0: 0: 1	
8475554002	9472624001	2004-05-14 18:05:35.0	2004-05-14 18:05:35.0	0: 0: 0	
8475554002	8475555000	2004-05-14 18:02:07.0	2004-05-14 18:02:34.0	0: 0: 27	
8475554002	8475555000	2004-05-14 20:08:18.0	2004-05-14 20:08:40.0	0: 0: 22	
8475554002	8475555000	2004-05-14 20:08:49.0	2004-05-14 20:11:14.0	0: 2: 25	
8475554002	4007	15499-11-29 22:58:59.0	2004-05-14 20:11:24.0	0: 0: 0	
8475554002	8475555000	2004-05-14 20:12:19.0	2004-05-14 20:12:50.0	0: 0: 31	
8475554002	4004	2004-05-14 20:13:42.0	2004-05-14 20:13:48.0	0: 0: 6	
8475554002	4004	2004-05-14 20:13:55.0	2004-05-14 20:14:00.0	0: 0: 5	
8475554002	9472624002	2004-05-14 20:16:54.0	2004-05-14 20:16:55.0	0: 0: 1	
8475554002	8475555000	2004-05-14 20:25:00.0	2004-05-14 20:25:27.0	0: 0: 27	
8475554002	8475555000	2004-05-14 20:25:35.0	2004-05-14 20:25:59.0	0: 0: 24	
8475554002	4004	2004-05-14 20:34:52.0	2004-05-14 20:35:18.0	0: 0: 26	
8475554002	4005	2004-05-14 20:35:18.0	2004-05-14 20:35:20.0	0: 0: 2	
8475554002	8475555000	2004-05-14 20:29:39.0	2004-05-14 20:30:06.0	0: 0: 27	
8475554002	8475555000	2004-05-14 20:32:47.0	2004-05-14 20:32:49.0	0: 0: 2	

Refresh

The *Call History* log contains 6 columns of information available for each phone.

Table 13 lists each column and describes the type of information available in that column.

Table 13   Call History Information for Phones

Column	Description
Caller Address	This field contains the address of the phone who initiated a specific call (the calling party).
Calling Address	This field contains the address of the phone who received a specific call (the called party).
Start Time (YYYY-MM-DD hh:mm:ss)	This field contains the date and time a call began.
	Note: Any call where the start time equals zero (for example, when a call is forwarded or not answered), the date is translated to 1970-01-01.
End Time (YYYY-MM-DD hh:mm:ss)	This field contains the date and time a call ended.
	Note: Any call where the end time equals zero (for example, when a call is forwarded or not answered), the date is translated to 1970-01-01.

(continued)

Table 13   Call History Information for Phones (continued)

Column	Description
Duration (hh:mm:ss)	This field contains the time duration for a specific call.
Features Used	This field contains a list of calling features used during a specific call.
	NOTE: If a speed dial is made using a mapped button, nothing for the call is listed in the *Features Used* column. If the same speed dial is made manually, the *Features Used* column lists *Speed Dial*.

*To get real-time call history, click **Refresh** at the bottom of the page.*

4 To return to the *User Phones* page, click *Back* on your web browser.

Viewing Phone Ring Tones

To view the ring tones assigned to an existing phone:

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Selective Ringing* in the *Actions* column.

The *Selective Call Ring Tones* page appears. See Figure 8.

Figure 8   Selective Call Ring Tones Window
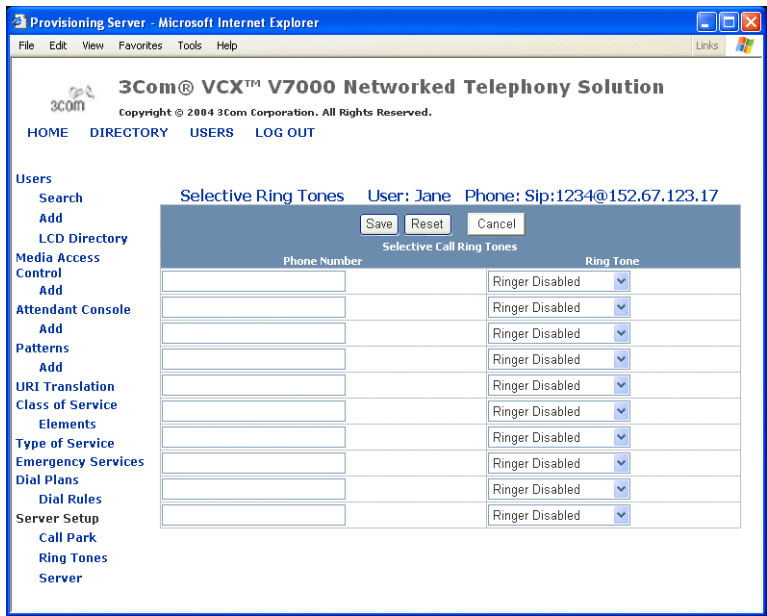
The *Selective Call Ring Tones* page contains two columns of information available for each phone registration.

Table 14 lists each column and describes the type of information available in that column.

Table 14   Ring Tones Page Descriptions

Column	Description
Phone Number	This field contains the phone number of an incoming call that you want to assign a specific ring tone to.
	The phone number must be entered in this format: sip:<phone extension>@<IP address of server>.
Ring Tone	This drop-down provides a selection of ring tones to assign to specific incoming phone numbers.
	Note: The ring tones are configured in from the Configuring Ring Tones section.

| **Adding or Editing Ring Tones of Specific Phones** | To add or edit ring tones of specific phones: |

1 Search for a particular end user.

See Searching for End Users on page 24.

2 From the *Users* page, click *Phones* in the *Phones* column.

The *User Phones* page appears.

3 From the *User Phones* page, click *Selective Ringing* in the *Actions* column.

The *Selective Call Ring Tones* page appears. See Figure 8.

4 Fill out the fields according to the descriptions provided in Table 14.

5 Click *Save*.

The *Selective Call Ring Tones* page is updated.

6 Click *Cancel* to return to previous page you were at.

Viewing the LCD Directory   The LCD Directory provides a listing of every end user and their associated extension(s) configured on the host server. This information is only configured and editable by modifying the phone's information, which can be done by following the specific sections in the "Configuring User Phones" section on page 27.

> *Only phones the administrator has allowed to be seen in the LCD Directory appear. To change whether or not a phone can be seen, see "Adding Phones" on page 27.*

To view all the phones listed for a host server:

1 From the left-hand side of the GUI, under the *Users* heading, click *LCD Directory*.

The *LCD Directory* page appears. See Figure 9.

Figure 9   LCD Directory Window
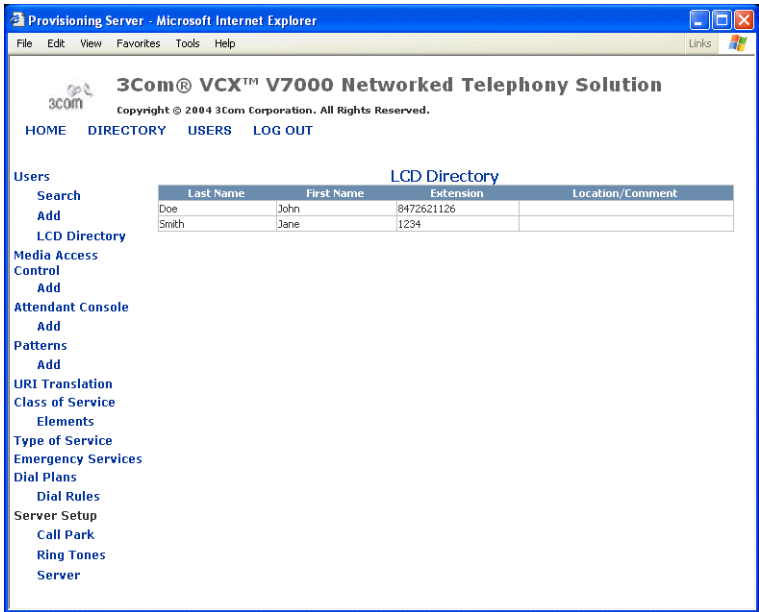
Configuring Media Access Control	The Media Access Control (MAC) address is used to physically identify each telephone within the network. Every telephone has a unique MAC address, which is located on the bottom of the telephone. In order to associate a MAC address with the correct phone number, you need to register them.

Adding a MAC Address

To add a MAC address:

1 From the left-hand side of the main page, click the *Media Access Control* heading.

The *Media Access Control List* page appears.

2 From the *Media Access Control List* page, click *Add MAC*.

The *Media Access Control* page appears.

3 Fill in the fields according to Table 15.

Table 15 MAC Address field descriptions

Field Heading	Description
Device Unique Address	This is the MAC address field. The MAC address must be in the format of 6 sets of two digit hex numbers, separated by a colon.
	For example: 00:e0:bb:13:48:5f.
	NOTE: 3Com products have a MAC address that start with 00:e0:bb.
Phone URI	The SIP phone's unique extension or URI_ID value. It is either null or an existing value of the table ACCOUNT_URI_MAP.
	Use the *sip:<telephone_extension>@<IP Address of host server>* format for the field.
	For example:
	sip:2222@10.168.1.1
	In the provisioning server, it is added by the URI_VALUE, and the provisioning server associates the URI_ID with URI_VALUE.
	NOTE: *Click* **Edit Phone** *to add or edit other end user telephone properties assigned. See "Adding Phones" on page 27 for more information*.

(continued)

Table 15   MAC Address field descriptions

Field Heading	Description
Locked	Indicated whether or not the telephone is disabled from the end user.
	Checked - The end user cannot change their extension using their telephone.
	Unchecked - The end user can change their extension using their telephone.
Location	Physical location of the phone. For example, you could indicate what the building, room, or cube the telephone is in.

4   Click *Save*.

Editing a MAC Address   To edit a MAC address:

1   From the left-hand side of the main page, click the *Media Access Control* heading.

The *Media Access Control List* page appears.

2   from the *MAC Address* column, click the MAC address you want to edit.

The *Media Access Control* page appears.

3   Edit the fields according to the descriptions in Table 15.

4   Click *Save*.

Deleting a MAC Address   To delete a MAC address:

1   From the left-hand side of the main page, click the *Media Access Control* heading.

The *Media Access Control List* page appears.

2   From the *Media Access Control List* page, click each checkbox preceding the *MAC Address* column for each MAC address you want to delete.

3   Click *Delete Selected*.

Configuring an Attendant Console	The Attendant Console allows an attendant to manage call handling within the enterprise more productively and quickly for end users. Calls can be accepted and dispatched within the enterprise and allows an attendant to verify if a telephone is busy. Up to three attendant consoles can be configured for each VCX system.

Supported Attendant Console Feature Buttons

The attendant console buttons support these features:

- Call Hold
- Call Park
- Call Transfer
- Conference

Adding an Attendant Console

To add an Attendant Console:

1 From the left-hand side of the main page, click *Add* under the *Attendant Console* heading.

The *Attendant Console* page appears. See Figure 10.

Figure 10 Attendant Console Window

2 Fill in the fields according to the Table 18.

Table 18 lists the Attendant Console field descriptions.

Table 16   Attendant Console Field Description

Field	Description
MAC Address	MAC address of the attendant console.
Location	Textual description of where Attendant Console is located such as a cube, office, or geographic area.
Associated User Phone Address	The address (sip:1234@10.67.10.46) of the phone to which the Attendant Console is associated with.
Associated User MAC Address	MAC address of the phone to which the Attendant Console is associated with.
Subscription Interval (sec)	Interval in seconds the Attendant Console updates itself with changes to its Button to Feature Mapping.

3 Click *Save*.

The *Attendant Console* page appears, showing the added attendant console.

4 Map the telephone features to the desired feature buttons on the attendant console.

a From the *Attendant Console* page, under the *Actions* column, click *Feature Mappings* in the same row as the attendant console you want to edit.

The *Attendant Console* page appears, which allows the attendant console buttons to be mapped to specific features.

b There are four feature buttons that can be mapped to the four available telephone features. The features available are:

- Call Hold
- Call Park
- Call Transfer
- Conference

c From each feature drop-down list, assign a unique feature to each feature button (1 through 4).

d Click Save.

The *Attendant Console* page refreshes, and the feature mappings are assigned.

5 Map the phone extensions to the attendant console buttons. The attendant console allows up to 100 telephones to be configured.

   a From the *Attendant Console* page, under the *Actions* column, click *Extension Mappings* in the same row as the attendant console you want to edit.

     The *Attendant Console* page appears, which allows the attendant console buttons to be mapped to specific extensions.

   b There are 100 fields available to configure telephone extensions. To configure extensions 1-50, click the *1-50* button; and to configure extensions 51-100, click the *51-100* button. Extensions should be configured using this format:

     `sip:<extension>@<domain name or IP address>`

     For example, sip:1234@3com.com or sip:1234@10.10.0.0

   c Click *Save*.

     The *Attendant Console* page refreshes, and the extension mappings are configured.

6 Reboot the telephones that where mapped to the attendant console.

Editing Feature Mapping Buttons on an Attendant Console

To edit a telephone feature button on an attendant console:

1 From the left-hand side of the main page, click *Attendant Console*.

   The *Attendant Console* page appears.

2 From the *Actions* column, in the same row as the attendant console you want to edit feature button mappings for, click *Feature Mappings*.

   The *Attendant Console* page appears that allows feature mapping configuration.

3 For each feature drop-down list, reassign a unique feature to each feature button (1 through 4).

4 Click Save.

   The *Attendant Console* page refreshes and the feature mappings are reassigned.

Editing Extensions on an Attendant Console

To edit the extensions for a attendant console:

1 From the left-hand side of the main page, click *Attendant Console*.

The *Attendant Console* page appears.

2 From the *Actions* column, in the same row as the attendant console you want to edit telephone extension mappings for, click *Extension Mappings*.

The *Attendant Console* page appears that allows telephone extension mapping configuration.

3 Change any telephone extensions that need to be edited.

4 Click *Save*.

The *Attendant Console* page refreshes, and the telephone extension mappings are reconfigured.

5 Reboot the telephones that where mapped to the attendant console.

Editing Attendant Console Basic Information

To edit attendant console MAC addresses, location, associated user phone address, and subscription interval:

1 From the left-hand side of the main page, click *Attendant Console*.

The *Attendant Console* page appears.

2 From the *MAC Address* heading, click the attendant console you want to edit.

The *Attendant Console* page appears, which allows the basic information to be edited.

3 Change the field values according to the descriptions in Table 16 on page 52.

4 Click *Save*.

The *Attendant Console* page refreshes, and the attendant console basics are reconfigured.

5 Reboot the telephones that where mapped to the attendant console.

Deleting an Attendant Console   To delete an attendant console:

1 From the left-hand side of the main page, click *Attendant Console*.

The *Attendant Console* page appears.

2 Click the checkbox(es) preceding the MAC Address(es) for each attendant console(s) you want to delete.

3 Click *Delete Selected*.

A pop-up window appears verifying you really want to delete the attendant console.

4 Click *OK*.

5 The *Attendant Console* page refreshes, verifying the attendant console was deleted.

Attendant Console Busy Lamp Flash Descriptions   The attendant can use the Busy Lamp Flash (BLF) indicators that are next to each extension on the attendant console to determine the state of an end user's telephone. Any telephone that is mapped to a button on the attendant console use the BLF indicators.

The BLF indicators are coded as follows:

Table 17   Attendant Console BLF Descriptions

BLF Indicator State	Description
Off	The end user's phone is not busy (on-hook) and available.
On (solid light)	The end user's phone is busy (off-hook) and in use.

Configuring Patterns   This section provides information on how to view, add, and delete patterns.

To add a pattern:

1 From the left-hand side of the main page, click the *Patterns* heading.

The *List Patterns* page appears.

2 From the *List Patterns* page, click *Add Pattern*.

The *Add Pattern* page appears. See Figure 11.

Figure 11   Add Pattern Window
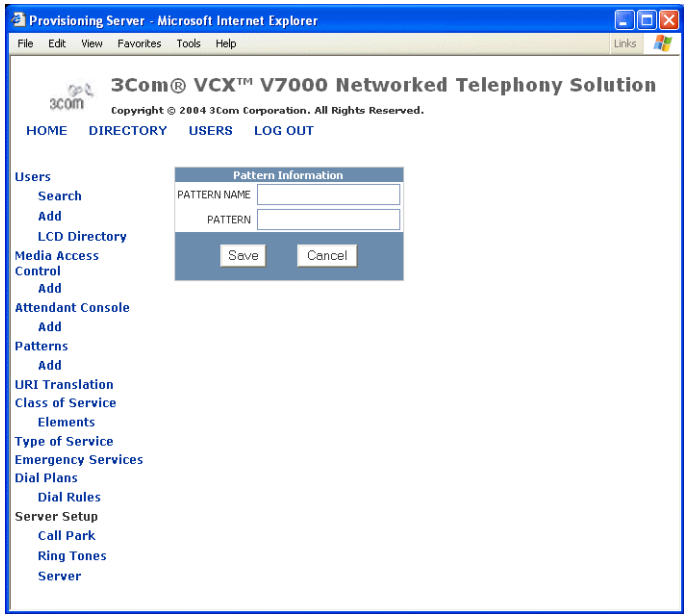
3 Fill in the fields according to the Table 18.

Table 18 lists the Add Pattern field descriptions.

Table 18   Add Pattern Field Description

Field	Description
PATTERN NAME	A unique name for the pattern.
PATTERN	This is the pattern value. It can contain a wild card (*), but only one or zero. If a * is present, it should be the last character in the pattern value.

4 Click *Save*.

The *List Patterns* page appears, showing the added pattern.

| **Configuring URI Translation Patterns** | To successfully communicate with other voice networks, the authentication server translates numbers based on source and destination calling patterns. |

To successfully communicate with other voice networks, the authentication server translates numbers based on source and destination calling patterns.

For example, if an end user dials number 456789 and the URI translation is configured so that the source pattern equals *and the destination pattern equals 456*, the result pattern is *@3com.com. In this example, the "*" is 789 because the user dialed 456789 and the destination pattern is 456*. 789 is used in place of the * in the result pattern, and the URI translation is 789@3com.com. 456789, the original phone number, gets translated as 789@3com.com and is processed accordingly.

Adding URI Translation Pattern

You can configure a URI translations to support VPN translations.

To add a URI translation:

1 From the left-hand side of the main page, click the *URI Translation* heading.

The *List URI Translation Patterns* page appears.

2 From the *List URI Translation Patterns* page, click *Add URI Translation*.

The *URI Translation* page appears. See Figure 12.

Figure 12 URI Translation Window
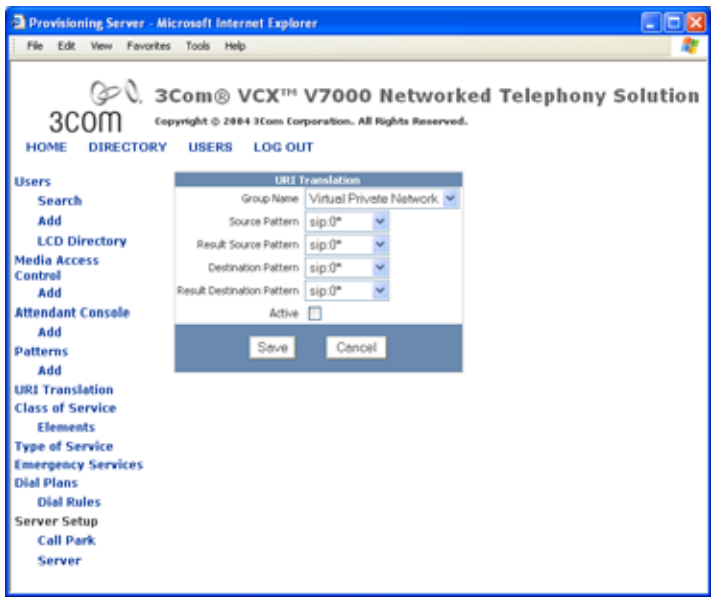
3 Use the drop-down menus according to Table 19. Patterns need to be pre-configured before you create any URI Translations. See "Configuring Patterns" on page 55 for more information.

Table 19 URI Translation Menu Descriptions

Field	Description
Group Name	Assign the URI translation to a group: ■ Virtual Private Network
Source Pattern	The source pattern where the call is coming from.
Result Source Pattern	This is the number that is displayed on the destination caller's LCD.
Destination Pattern	The called party for this URI translation.
Result Destination Pattern	The result pattern for this URI translation.
Active	Checked – this URI Translation is enabled. Not Checked – this URI Translation is disabled.

This example shows a call being made from one company in the United States to another company in the United States. The call is outside the caller's network and the caller does not want their extension made visible to the callee. A *Result Source Pattern* is used to display a different number, such as the 800 number of the caller's company.

If the caller's telephone number is 847-555-2122, the 800 number for the caller's company is 800-555-3433, the telephone number of the caller 508-555-4344, and the caller needs to dial a "9" to reach an outside line, you would set up an URI Translation in this manner:

Source Pattern – `sip:8*`

This signifies any telephone number that starts with an 8 (in this case 847-555-2122) within the company should follow the patterns set for the destination pattern.

Result Source Pattern – `sip:8005553433*`

This is the number that should be displayed on the caller's LCD.

Destination Pattern – `sip:91*`

This strips the 91 from the number once it reaches the gateway. Since this call is being made within the United States to another area code and the caller needs to dial 9 to get an outside line, the pattern is set up as sip:91*. If a caller needed to reach a telephone outside the United States, the Destination Pattern would be configured as sip:901*.

Result Destination Pattern – `sip:1*`

This strips the 1 from the number as it leaves the gateway.

4 Click *Save*.

The *List URI Translation Patterns* page appears, showing the added URI translation pattern.

Deleting URI Translation Patterns

To delete URI translation patterns:

1 From the left-hand side of the main page, click the *URI Translation* heading.

The *List URI Translation Patterns* page appears.

2 From the *List URI Translation Patterns* page, check the checkbox(es) preceding the pattern you want to delete.

3 Click *Delete Selected*.

The *List URI Translation Patterns* page refreshes, showing the deleted URI translation pattern.

Configuring Class of Service

Class of Service indicates what phone numbers an end user is allowed to either place or receive. Class of Services are comprised of one or more elements. Elements are made of patterns, which are associated with a phone number type such as Local or Emergency (varies by country). By creating Class of Services, it makes it easier for you to configure end user phones since the Class of Service names are added to a drop-down menu when you configure an end user phone and you can apply the same configuration across multiple telephones.

The emergency dialable digits are controlled by the ERL screens. If the emergency digits are identified by an ERL then those emergency dialable digits will not be applied a Class of Service treatment. Just because a Class of Service Element is named *Emergency* and is blacklisted does not mean that Emergency calls will not go through.

Adding a Class of Service

To add a Class of Service:

1 In the left-hand side of the main page, click the *Class of Service* heading. The *Class Of Service List* page appears.

2 From the *Type name of new class* field, type in unique name to describe the new Class of Service.

3 Click *Add*. The *Class of Service List* page refreshes showing the recently added Class of Service.

4 From the *Name* column, click the name of the new Class of Service. The *Class Of Service Details For <Class of Service Name>* page appears.

Figure 13   Class of Service Details For <Class of Service Name> Window
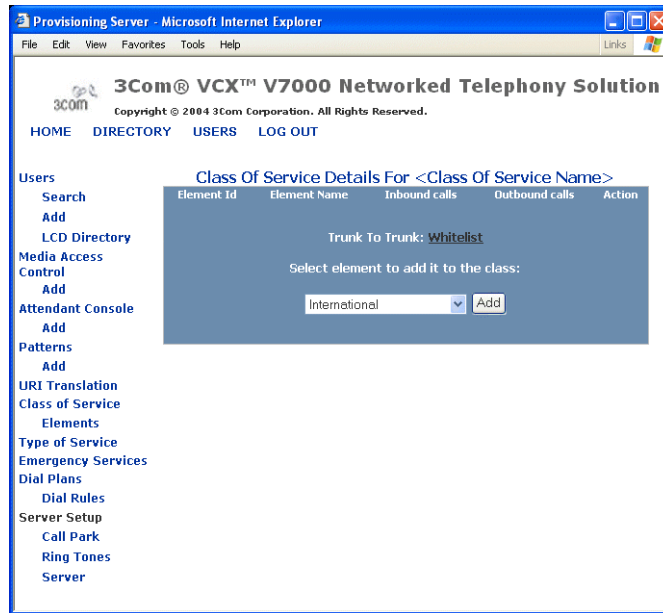
5 Add elements to the Class of Service by selecting an element from the *Select element to add it to the class* drop-down menu.

6 Click *Add*. The *Class Of Service Details For <Class of Service Name>* page refreshes. Continue to add as many elements as you want to the Class of Service.

7 For each element you can configure whether or not inbound calls are allowed to be received and if outbound calls are allowed to be placed. In each element row, click under the *Inbound calls* and *Outbound calls* heading to either enable or disable these types of calls.

- If *Whitelist* is listed — These types of elements (calls) are allowed to be placed or received.

- If *Blacklist* is listed — These types of elements (calls) are not allowed to be placed or received.

8 For each Class of Service, Trunk to Trunk dialing can be configured. If enabled, end users are allowed to transfer calls from within the phone system to outside the phone system or to forward a call from outside the phone system to somewhere else outside the phone system. If it says *Whitelist* next to *Trunk to Trunk*, this feature is allowed.

Enabling or Disabling Inbound or Outbound Calls in a Class of Service

To enable or disable inbound or outbound calls in a Class of Service:

1 From the left-hand side of the main page, click the *Class of Service* heading. The *Class Of Service List* page appears.

2 From the *Name* column, click the name of the Class of Service you want to edit. The *Class Of Service Details For <Class of Service Name>* page appears.

■ If you want to enable or disable an inbound call:

From the *Inbound calls* column, either the word *Whitelist* or *Blacklist* is listed and represents what authorization state the element is in. To change the state, click the word *Whitelist* (or *Blacklist* depending on configuration) to make it the opposite of what is listed.

■ If you want to enable or disable an outbound call:

From the *Outbound calls* column, either the word *Blacklist* or *Whitelist* is listed and represents what authorization state the element is in. To change the state, click the word *Whitelist* (or *Blacklist* depending on configuration) to make it the opposite of what is listed.

Adding or Deleting Elements from a Class of Service

To add or delete elements from a Class of Service:

1 From the left-hand side of the main page, click the *Class of Service* heading. The *Class Of Service List* page appears.

2 From the *Name* column, click the name of the Class of Service you want to edit. The *Class Of Service Details For <Class of Service Name>* page appears.

To add elements to a Class of Service:

a From the *Select element to add it to the class* drop-down menu, choose an element to add to the Class of Service.

b Click *Add*. The *Class Of Service Details For <Class of Service Name>* page refreshes. Continue to add as many elements as you want to the class of service.

c For each element, configure whether or not inbound calls are allowed to be received and if outbound calls are allowed to be placed. In each

element row, click under the *Inbound calls* and *Outbound calls* heading to either enable or disable these types of calls.

- If *Whitelist* is listed — These types of elements (calls) are allowed to be placed or received.

- If *Blacklist* is listed — These types of elements (calls) are not allowed to be placed or received.

To delete elements from a Class of Service:

a From the *Action* column, click *Remove from class* in the same row as the element that you want to delete.

The *Class Of Service Details For <Class of Service Name>* page refreshes, showing the deleted element.

Enabling or Disabling Trunk to Trunk Calls for a Class of Service

To enable or disable Trunk to Trunk calls for a Class of Service:

1 From the left-hand side of the main page, click the *Class of Service* heading. The *Class Of Service List* page appears.

2 From the *Name* column, click the name of the Class of Service you want to edit. The *Class Of Service Details For <Class of Service Name>* page appears.

3 Following the *Trunk To Trunk* heading, either the word *Blacklist* or *Whitelist* is listed and represents what authorization state the Class of Service is in. To change the state, click the word *Whitelist* (or *Blacklist* depending on current configuration) to make it the opposite of what is listed.

The *Class Of Service Details For <Class of Service Name>* page refreshes, showing the update Trunk to Trunk call state.

Configuring Class of Service Elements

Elements are made of patterns, which are associated with a phone number type such as Local or Emergency. Elements are needed so Class of Service types can be created. Any element created is added to a drop-down menu for when you go to add or edit a Class of Service.

Adding Class of Service Elements

To add a Class of Service element:

1 From the left-hand side of the main page, under the *Class of Service* heading, click *Elements*. The *Elements Of Class Of Service* page appears.

2 From the *Type name of new element* field, type a name to define the element.

3 Click *Add*. The *Elements Of Class Of Service* page refreshes showing the new element.

4 Click the new element from the *Name* column to create patterns to associate with the element.

5 The *Patterns For <Element Name>* page appears. See Figure 14.

Figure 14 Patterns For <Element Name> Window
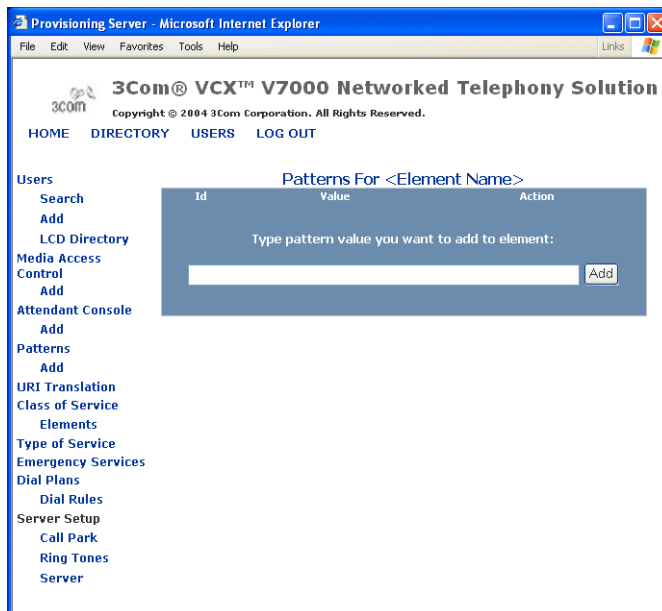
6 From the *Type pattern value you want to add to element* field, type a pattern for the element.

7 Click *Add*. The *Patterns For <Element Name>* page refreshes, showing the recently added pattern. Continue to add as many patterns as you want to associate with that element.

Editing Class of Service Elements

Editing a class of service element allows you to either delete or add a new pattern to an element. You cannot revise a pattern once it has been added to an element, you can only delete a pattern you no longer want and add a new pattern.

To edit a Class of Service element:

1 From the left-hand side of the main page, under the *Class of Service* heading, click *Elements*. The *Elements Of Class Of Service* page appears.

2 From the *Name* column, click on the element you want to edit. The *Patterns For <Element Name>* page appears.

  a To delete a pattern, from the *Action* column, click *Delete* in the same row as the pattern you want to delete.

  b To add a new pattern, type a new pattern in the *Type pattern value you want to add to element* field and click *Add*.

3 The *Patterns For <Element Name>* page refreshes showing the edited element.

Configuring Type of Service

Type of Service indicates what phone features an end user is allowed to have. Type of Services are comprised of one or more phone features that are bundled. For instance, if there are common phone feature configurations, you can bundle those configurations into one Type of Service so it makes end user phone configuration easier. The configured Type of Service names are added to a drop-down menu when you configure an end user phone.

Adding a Type of Service

To add a Type of Service:

1 From the left-hand side of the main page, click the *Type of Service* heading. The *Types Of Service List* page appears. See Figure 15.

Figure 15   Types of Service List Window
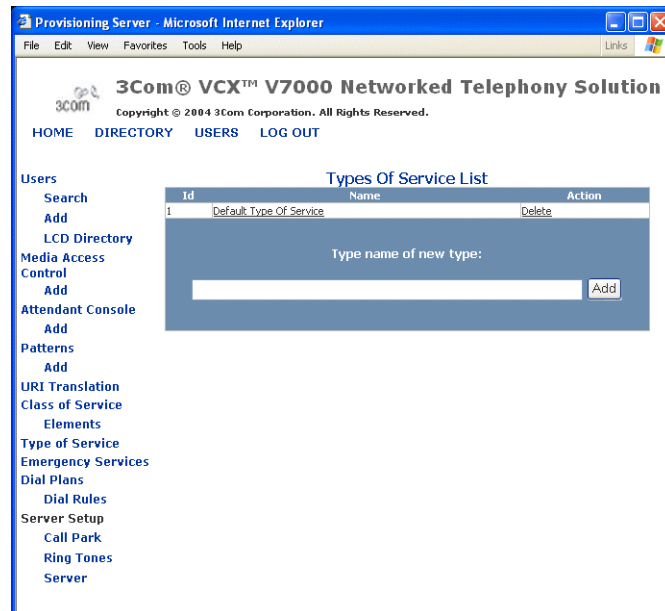
2 From the *Type name of new type* field, type in a unique name to describe the new Type of Service.

3 Click *Add*. The *Types of Service List* page refreshes showing the recently added Type of Service.

4 From the *Name* column, click the name of the new Type of Service. The *Type Of Service Details For <Type of Service Name>* page appears. See Figure 16.

Figure 16 Type Of Service Details For <Type of Service Name> Window
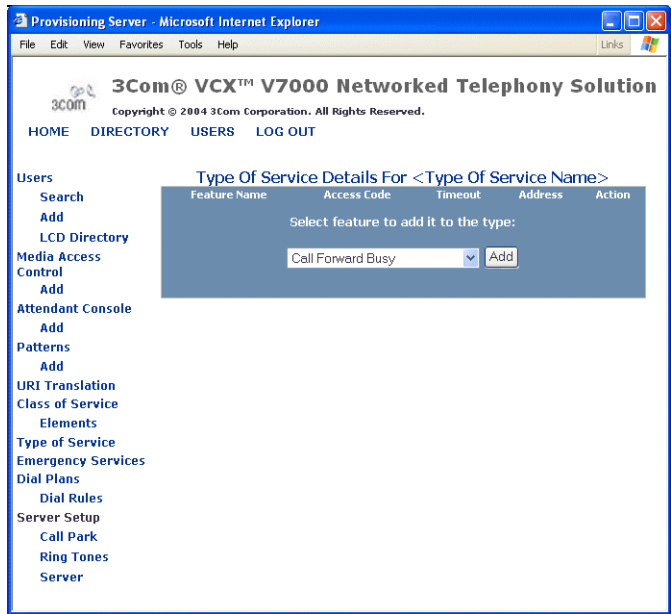
5 Add a feature to the Type of Service by selecting a feature from the *Select feature to add it to the type* drop-down menu.

> *Features descriptions are provided in the Adding Phone Features section on page 32.*

6 Click *Add*. The *Type Of Service Details For <Class of Service Name>* page refreshes. Continue to add as many features as you want to the Type of Service.

Deleting Type of Services

To delete a Type of Service:

1 From the left-hand side of the main page, click the *Type of Service* heading. The *Types Of Service List* page appears.

2 From the *Action* column, click *Delete* in the same row as the Type of Service you want to delete. The *Types Of Service List* page refreshes.

Editing Type of Services

To edit the features assigned to a Type of Service:

1 From the left-hand side of the main page, click the *Type of Service* heading. The *Types Of Service List* page appears.

2 From the *Name* column, click the name of the Type of Service you want to edit. The *Type Of Service Details For <Type of Service Name>* page appears.

To add another feature to the Type of Service:

a Add a feature to the Type of Service by selecting a feature from the *Select feature to add it to the type* drop-down menu.

i ▷ *Features descriptions are provided in the Adding Phone Features section on page 32.*

b Click *Add*. The *Type Of Service Details For <Type of Service Name>* page refreshes. Continue to add as many features as you want to the Type of Service.

To delete a feature from the Type of Service:

a From the *Action* column, click *Remove from type* in the same row as the feature you want to delete. The *Type Of Service Details For <Type of Service Name>* page refreshes showing the deleted feature.

Configuring Emergency Services

An Emergency Response Location (ERL) is defined as a location to which an emergency team may be dispatched. The complete VCX system is organized, from an emergency services point of view, into various ERLs. For instance, telephones can be assigned unique ERLs based on a geographic or physical location.

Each phone (uniquely identified by the assigned IP address) is part of a unique ERL and each ERL is assigned a location-wide emergency callback phone number. In addition, a set of emergency gateways are specified, which are used to directly reach the emergency service provided in case the Call Processor is down.

A set of ELINs are assigned to each ERL, so the phones in a particular ERL have a pool of ELINs. An emergency caller is assigned an ELIN from this shared pool. This association is used to callback the emergency caller. If all the ELINs associated with an ERL are in use, the location specific emergency callback number is used instead.

To ensure that emergency calls always go through, a set of system-wide defaults are defined — the callback phone number and an emergency gateway, identified by its IP address. These system defaults are used for phones which are not part of any ELIN.

The emergency dialable digits are controlled by the ERL screens. If the emergency digits are identified by an ERL then those emergency dialable digits will not be applied a Class of Service treatment. Just because a Class of Service Element is named *Emergency* and is blacklisted does not mean that Emergency calls will not go through.

Adding ERLs   When ERLs are configured, you can configure Emergency Location Identification Numbers (ELIN), which are assigned through an emergency services administrator.

To add an ERL:

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears. See Figure 17.

Figure 17   Emergency Defaults and Emergency Response Locations Window
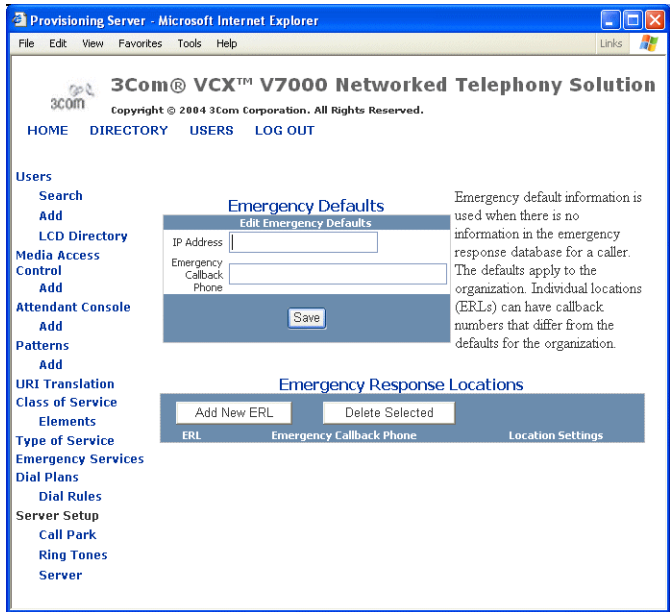
2 Click *Add New ERL*.

The *Emergency Location* page appears.

3 In the *Location* field, type a descriptive identifier for the location the ERL is for based on geographic or physical location. For example, building XYX, 1st floor. There is a 10 character limit.

4 In the *Emergency Callback Phone* field, type the phone number of the contact person responsible for emergency situations within an organization (for example, a security guard).

5 Click *Save*.

The ERL is added to the *Emergency Response Location* heading. See Figure 18.

Figure 18   Emergency Defaults and Emergency Response Locations Window
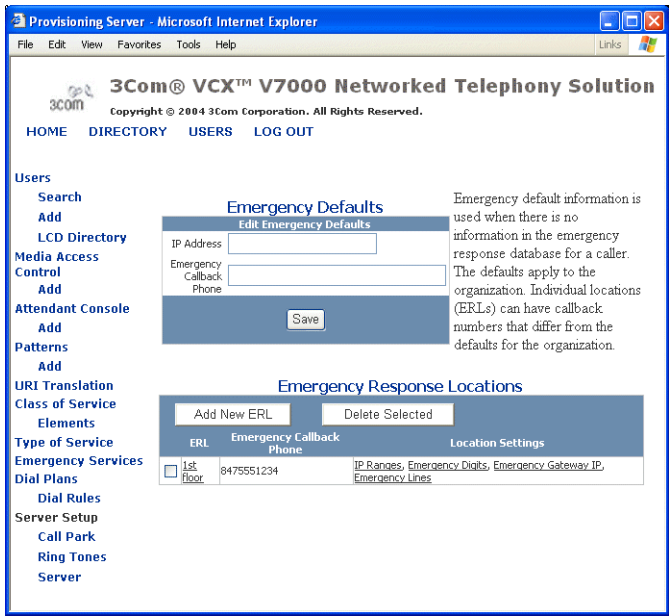
6 Add an IP address range for the ERL.

This specifies which telephones should be included within this ERL (for example, all telephones on the 1st floor of a building). Each phone in an ERL is assigned an IP address from a range of IP addresses specified by network address and netmask.

a From the *Location Settings* heading, click *IP Ranges* within the same row as the ERL you want to configure.

The *List of IP Ranges for <Name of ERL>* page appears.

b Click *Add New.*

The *IP Address Range* page appears.

c In the *IP Address* field, type the IP network address for phones you want to include in this ERL.

d In the *Subnet Mask* field, type the subnet mask for this IP address range.

e Click *Save*.

The *List of IP Ranges for <Name of ERL>* page refreshes showing the new IP address range.

7 Configure the Emergency Digits for the ERL.

Configuring the Emergency Digits (numbers) signals to the gateway that the call being dialed is an emergency number. Any numbers configured are marked as emergency calls and handled differently in case of a disconnect.

a Click *<Name of ERL>* from the top of the *List of IP Ranges for <Name of ERL>* page to return to the ERL configuration page.

b From the *Location Settings* heading, click *Emergency Digits* within the same row as the ERL you want to configure.

The *Emergency Digits For <Name of ERL>* page appears.

c Click *Add New*.

d From the *Emergency Number* field, type an emergency number to signal to the gateway that when this number is dialed, treat it as an emergency number (for example, sip:911@<IP address of server>).

e Click *Save*.

f The *Emergency Digits For <Name of ERL>* page refreshes showing the new emergency digit (number).

g If you have more Emergency Digits (numbers) to add, repeat step c through step e.

8 Configure the Emergency Gateway IP for the ERL.

Configuring the Emergency Gateway IP specifies the address of the gateway to be used to reach an emergency service provider in case the VCX Call Processor is down. You can configure multiple gateways for a redundant configuration.

a Click *<Name of ERL>* from the top of the *Emergency Digits For <Name of ERL>* page to return to the ERL configuration page.

b Click *Emergency Gateway IP* within the same row as the ERL you want to configure.

The *Emergency Gateway IP Addresses For <Name of ERL>* page appears.

c Click *Add New.*

The *Gateway IP Address* page appears.

d In the *Gateway IP Address* field, type the IP address of the gateway you want calls to be routed to for the IP addresses (telephones) within the ERL.

e Click *Save.*

The *Emergency Gateway IP Addresses For <Name of ERL>* page refreshes, showing the emergency gateway.

f If you have more Emergency Gateways to add, repeat step b through step e.

9 Configure the Emergency Lines for the ERL.

Configuring the Emergency Lines determines which ELINs should be assigned to each ERL. You can configure multiple ELINs for each ERL.

a Click *<Name of ERL>* from the top of the *Emergency Digits For <Name of ERL>* page to return to the ERL configuration page.

b Click *Emergency Lines* within the same row as the ERL you want to configure*.*

The *Emergency Line ID Numbers <Name of ERL>* page appears.

c Click *Add New ELIN*.

The *Emergency Line ID Numbers* page appears.

d From the *ELIN* field, type the Emergency Location Identification Number.

e In the *Association Release Timer* field, type in the amount of time you want to leave the ELIN associated to the emergency caller. This number is entered as a string in hours and the range is 1 through 24. This association is used to callback the emergency caller. After the configured time expires, the association between the emergency caller and ELIN is dropped. In case an ELIN is not in use, it can be assigned to

a new emergency caller and the association with an older emergency caller is overwritten with the association of the new emergency caller.

f In the *Usage Release Timer* field, type in the maximum amount of time you want to allow the ELIN to remain in use. This number is entered as a string in hours and the range is 1 through 24. Normally, an ELIN is freed when the emergency service provider goes on-hook before the emergency caller goes on-hook, otherwise, the ELIN is kept in use for the duration of this timer.

g Click *Save*.

The *Emergency Line ID Numbers <Name of ERL>* page refreshes, showing the ELIN.

h If you have more ELINs to add, repeat step b through step g.

The ERL is now configured.

Adding or Editing the Emergency Defaults

The emergency defaults are used when there is no information in the emergency response database for a emergency caller (phone IP address). Typically, phone IP addresses are stored within ranges for a defined ERL.

> *If Emergency service settings are changed, (for example, the gateway IP address or emergency digits) they will not take effect until the telephones are power cycled. A simple logout/login of the telephone is not adequate enough.*

To add or edit the emergency defaults:

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Defaults* page appears.

2 In the *IP Address* field, type the IP address of a system-wide emergency gateway.

3 In the *Emergency Callback Phone* field, type the phone number of the contact person responsible for emergency situations within the organization (for example, a security guard).

4 Click *Save*.

The Emergency Default is applied to the entire organization.

Deleting ERLs   To delete an ERL:

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 Click the checkbox(es) preceding the ERL(s) you want to delete.

3 Click *Delete Selected*.

A pop-up window appears, verifying if you really want to delete the ERL(s).

4 Click *OK*.

The *Emergency Response Location* page refreshes, verifying the ERL(s) were deleted.

Editing IP Addresses   To edit an IP address range for the ERL.
of an ERL

> *If Emergency service settings are changed, (for example, the gateway IP address or emergency digits) they will not take effect until the telephones are power cycled. A simple logout/login of the telephone is not adequate enough.*

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click within the same row as the ERL you want to edit.

The *List of IP Ranges for <Name of ERL>* page appears.

3 From the *Network IP* heading, click the IP address range you want to edit.

The *IP Address Range* page appears.

4 In the *IP Address* field, type the IP network address for phones you want to include in this ERL.

5 In the *Subnet Mask* field, type the subnet mask for this IP address range.

6 Click *Save*.

The *List of IP Ranges for <Name of ERL>* page refreshes showing the new IP address range.

Deleting IP Addresses from an ERL

To delete an IP address range from an ERL.

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *IP Ranges* within the same row as the ERL you want to delete IP address from.

The *List of IP Ranges for <Name of ERL>* page appears.

3 Click the checkbox(es) preceding the IP address(es) you want to delete.

4 Click *Delete Selected*.

A pop-up window appears, verifying if you really want to delete the IP address(es).

5 Click *OK*.

The *List of IP Ranges for <Name of ERL>* page refreshes verifying the IP address(es) were deleted.

Editing Emergency Digits

To edit an Emergency Digit for the ERL.

> *If Emergency service settings are changed, (for example, the gateway IP address or emergency digits) they will not take effect until the telephones are power cycled. A simple logout/login of the telephone is not adequate enough.*

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *Emergency Digits* within the same row as the ERL you want to edit.

The *Emergency Digits For <Name of ERL>* page appears.

3 From the *Emergency Number* heading, click the telephone you want to edit.

The *Emergency Number* page appears.

4 From the *Emergency Number* field, edit the emergency number.

5 Click *Save*.

The *Emergency Digits For <Name of ERL>* page refreshes showing the new Emergency Digit.

Deleting Emergency Digits from an ERL   To delete an Emergency Digit from an ERL.

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *Emergency Digits* within the same row as the ERL you want to delete an Emergency Digit from.

The *Emergency Digits For <Name of ERL>* page appears.

3 Click the checkbox(es) preceding the Emergency Digit(s) you want to delete.

4 Click *Delete Selected*.

A pop-up window appears, verifying if you really want to delete the Emergency Digit(s).

5 Click *OK*.

The *Emergency Digits For <Name of ERL>* page refreshes verifying that the Emergency Digit(s) were deleted.

Editing Emergency Gateway IP Addresses from an ERL   To edit an Emergency Gateway IP Address for the ERL.

> *If Emergency service settings are changed, (for example, the gateway IP address or emergency digits) they will not take effect until the telephones are power cycled. A simple logout/login of the telephone is not adequate enough.*

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *Emergency Gateway IP* within the same row as the ERL you want to edit.

The *Emergency Gateway IP Addresses For <Name of ERL>* page appears.

3 From the *IP Address* heading, click the IP address you want to edit.

The *Gateway IP Address* page appears.

4 In the *Gateway IP Address* field, type the IP address of the gateway you want to edit.

5 Click *Save*.

The *Emergency Gateway IP Addresses For <Name of ERL>* page refreshes, showing the Emergency Gateway.

Deleting Emergency Gateway IP Addresses from an ERL

To delete an Emergency Gateway IP Address from an ERL.

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *Emergency Gateway IP* within the same row as the ERL you want to delete the Emergency Gateway IP address from.

The *Emergency Gateway IP Addresses For <Name of ERL>* page appears.

3 Click the checkbox(es) preceding the Emergency Gateway IP Address(es) you want to delete.

4 Click *Delete Selected*.

A pop-up window appears, verifying if you really want to delete the Emergency Digit(s).

5 Click *OK*.

The *Emergency Gateway IP Addresses For <Name of ERL>* page refreshes, verifying the Emergency Gateway(s) were deleted.

Editing Emergency Lines to an ERL

To edit an Emergency Line for the ERL.

> **i** *If Emergency service settings are changed, (for example, the gateway IP address or emergency digits) they will not take effect until the telephones are power cycled. A simple logout/login of the telephone is not adequate enough.*

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *Emergency Lines* within the same row as the ERL you want to edit.

The *Emergency Line ID Numbers <Name of ERL>* page appears.

3 From the *ELIN* heading, click the ELIN you want to edit.

The *Emergency Line ID Number* page appears.

4 From the *ELIN* field, type the Emergency Location Identification Number.

5 In the *Association Release Timer* field, type in the amount of time you want to leave the ELIN associated to the emergency caller. This number is entered as a string in hours and the range is 1 through 24. This association is used to callback the emergency caller. After the configured time expires, the association between the emergency caller and ELIN is dropped. In case an ELIN is not in use, it can be assigned to a new emergency caller and the association with an older emergency caller is overwritten with the association of the new emergency caller.

6 In the *Usage Release Timer* field, type in the maximum amount of time you want to allow the ELIN to remain in use. This number is entered as a string in hours and the range is 1 through 24. Normally, an ELIN is freed when the emergency service provider goes on-hook before the emergency caller goes on-hook,otherwise, the ELIN is kept in use for the duration of this timer.

7 Click *Save*.

The *Emergency Line ID Numbers <Name of ERL>* page refreshes, showing the ELIN.

Deleting Emergency Lines from an ERL

To delete an Emergency Line from an ERL.

1 From the left-hand side of the *Users* main page, click the *Emergency Services* heading.

The *Emergency Response Locations* page appears.

2 From the *Location Settings* heading, click *Emergency Lines* within the same row as the ERL you want to delete an ELIN from.

The *Emergency Line ID Numbers <Name of ERL>* page appears.

3 Click the checkbox(es) preceding the Emergency Gateway IP Address(es) you want to delete.

4 Click *Delete Selected*.

A pop-up window appears, verifying if you really want to delete the Emergency Line(s).

5 Click *OK*.

The *Emergency Line ID Numbers <Name of ERL>* page refreshes, verifying the ELIN(s) were deleted.

Configuring Dial Plans

Dial plans are comprised of individual or bundled dial rules. By creating dial plans, it makes it easier for you to configure end user phones since the dial plan names are added to a drop-down menu when you configure an end user phone. Dial rules must be created before a dial plan is created. Once dial plans are associated with a phone, the configured phone numbers no longer require an end user to press OK to place a call.

Adding Dial Plans

To add a dial plan:

1 Verify that the dial rules you want associated with the dial plan have already been created by clicking the *Dial Rules* heading from the menu.

    a If all of the dial rules have already been created, continue with step 2.

    b If you still need to create a dial rule, go to the Adding Dial Rules section on page 84 before continuing with the next step.

2 Create a name to associate with the Dial Plan, by clicking *Dial Plans*. The *Dial Plans* page appears.

3 Click *Add Dial Plan*. The *Add Dial Plan* page appears. See Figure 19.

Figure 19   Add Dial Plan Window
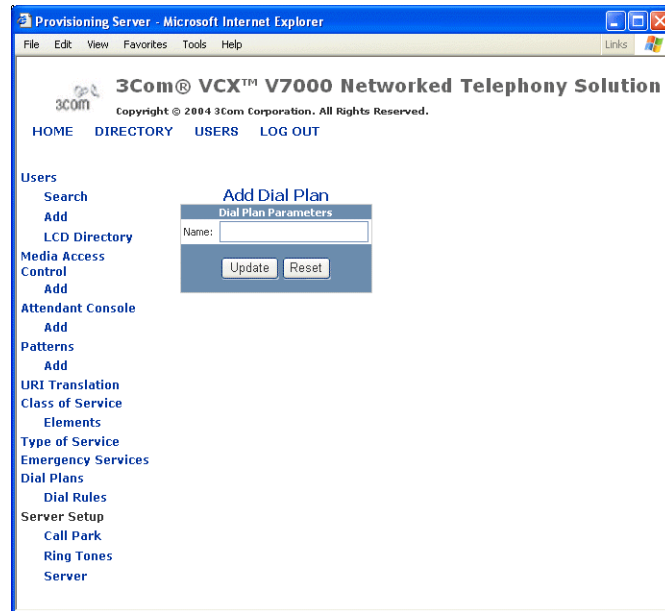
4 Type a unique name to assign to the dial plan in the *Name* field.

5 Click *Update*. The *Dial Plans* page appears, showing the new dial plan name.

6 Click *Dial Rules* in the same row as the new dial plan to associate dial rules with it. The *Dial Rules For Dial Plan: <Dial Plan Name>* page appears. See Figure 20.

Figure 20 Dial Rules For Dial Plan: <Dial Plan Name> Window
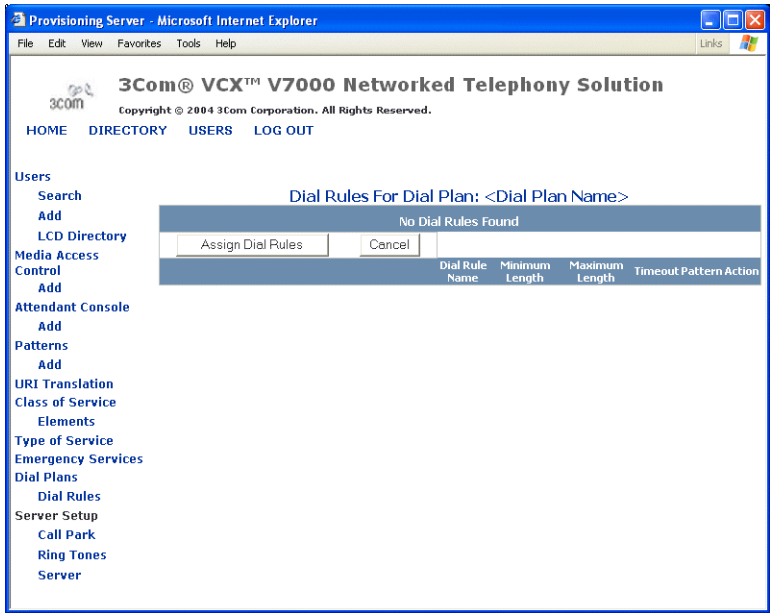
7 Click *Assign Dial Rules*. The *Assign New Dial Rules for Dial Plan: <Dial Plan Name>* page appears. Figure 21.

Figure 21 Assign New Dial Rules for Dial Plan: <Dial Plan Name> Window
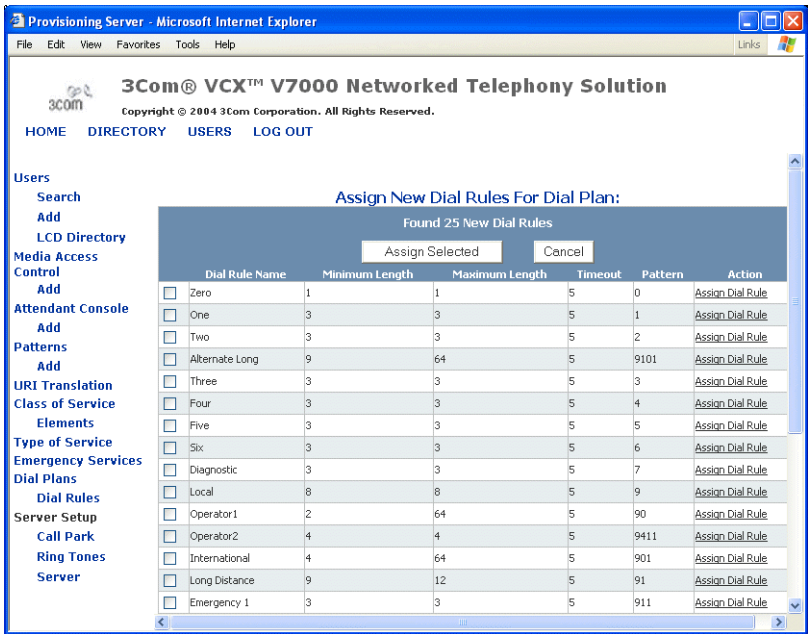
8 Click the checkbox of each dial rule you want to associated with the new dial plan.

9 Click *Assign Selected*. The *Dial Rules For Dial Plan: <Dial Plan Name>* page appears showing all of the dial rules associated with that dial plan.

Editing Dial Plan Names

To edit a dial plan name:

1 From the left-hand side of the main page, click *Dial Plans*. The *Dial Plans* page appears.

2 Click the dial plan name you want to edit from the *Name* column. The *Edit Dial Plan* page appears.

3 Revise the name of the dial plan and click *Update*. The *Dial Plans* page appears showing the change.

Editing Dial Rules Associated with a Dial Plan

To edit the dial rules associated with a dial plan:

1 From the left-hand side of the main page, click *Dial Plans*. The *Dial Plans* page appears.

2 Click *Dial Rules* in the same row as the dial plan you want to edit. The *Dial Rules For Dial Plan: <Dial Plan Name>* page appears.

    a To assign additional dial rules, click *Assign Dial Rules*.

    b To unassign dial rules, click the checkbox preceding the dial rule(s) and then click *Unassign Selected*.

> **i** *If unassigning a dial rule, it only unassigns it from the dial plan being edited. The unassigned dial rule is still associated to any other dial plan that it is assigned to.*

3 The *Dial Rules For Dial Plan: <Dial Plan Name>* page refreshes showing all of the dial rules assigned to that dial plan.

Deleting Dial Plans

To delete a dial plan:

> **i** *When you delete a dial plan, any dial rules associated with the deleted dial plan are not deleted.*

> **i** *If a dial plan is assigned to a user or a phone, it cannot be deleted.*

1 From the left-hand side of the main page, click *Dial Plans*. The *Dial Plans* page appears.

2 Click the checkbox preceding the dial plan you want to delete.

3 Click *Delete Selected*. The *Dial Rules* page refreshes showing the deleted dial plan.

Configuring Dial Rules

Dial rules simplify dialing and are created by configuring patterns for phone numbers or phone number ranges. Dial rules can be bundled to create a dialing plan, which can then be assigned to a specific phone. Once dial plans are associated with a phone, the configured phone numbers no longer require an end user to press OK to place a call.

Adding Dial Rules   To add a dial rule:

1 From the left-hand side of the main page, under the *Dial Plans* heading, click *Dial Rules*. The *Dial Rules* page appears.

2 Click *Add Dial Rules*. The *Add Dial Rule* page appears. See Figure 22.

Figure 22   Add Dial Rules Window
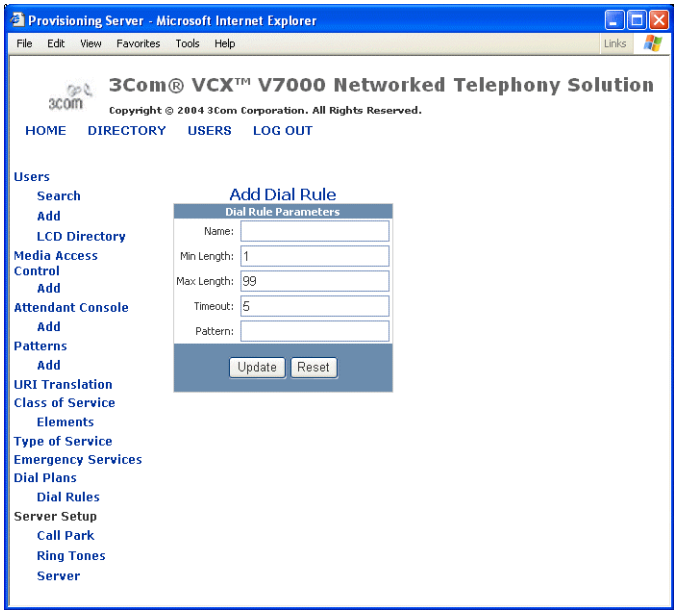
3 Fill out the fields according to Table 20.

Table 20 describes the **Dial Rule Parameters** fields.

Table 20   Dial Rule Parameter Field Descriptions

Field	Description
Name	This assigns a unique name to the individual dialing rule.
Min Length	This indicates the minimum number of digits in a phone number an end user must dial before a call is placed automatically.
Max Length	This indicates the maximum number of digits in a phone number an end user must dial before a call is placed automatically.

(continued)

Table 20   Dial Rule Parameter Field Descriptions (continued)

Field	Description
Timeout	This indicates the number of seconds that the phone will wait for another digit to be dialed before it places the call.
	Note: The default timeout is 5 seconds.
Pattern	This represents a defined string of numbers. When the defined string of numbers dialed matches a configured pattern, the phone number being dialed is automatically placed once the configured Timeout expires and as long as it is within the range of the configured length.

4 Click *Update*. The *Dial Rules* page appears showing the new dial rule.

Deleting Dialing Rules   To delete a dial rule:

1 From the left-hand side of the main page, under the *Dial Plans* heading, click *Dial Rules*. The *Dial Rules* page appears.

2 From the *Dial Rules* page, either an individual or multiple dial rules can be deleted.

> **i** *This deletes the dial rule completely. Any dial plan associated with this dial rule will no longer have this dial rule associated with it.*

■ Individual — Click the checkbox preceding the dial rule and then click delete from the Action column in the same row as the dial rule.

■ Multiple — Click the checkbox preceding the dial rules and then click *Delete Selected*.

The *Dial Rules* page refreshes showing the deleted dial rule.

Configuring Call Park   This section provides information on how to globally configure call park for a network domain. This feature allows end users to place a call on hold so it may be retrieved from another phone in the system. For example, if you are on an active call at your phone, you can park the call with an access code and the authentication server automatically reserves a call session. Then you can go on a different phone, dial the access code, and continue the call.

To configure the call park feature:

1 From the left-hand side of the main page, under the *Server Configuration* heading, click *Call Park*.

The *Call Park Configuration* page appears. See Figure 23.

Figure 23   Call Park Configuration Window
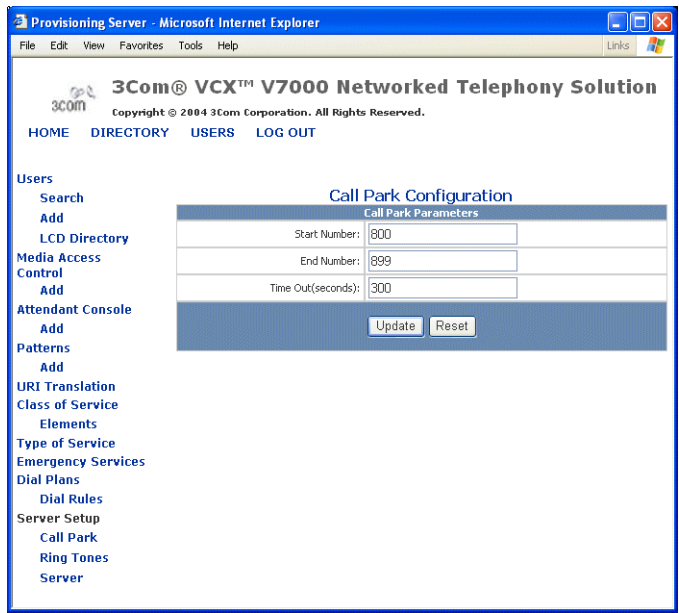
2 Fill out the fields according to Table 21.

Table 21 describes the *Call Park Configuration* fields.

Table 21   Call Park Field Descriptions

Field	Description
Start Number	The number to begin call sessions for calls being parked. 3Com recommends the start number to be 800.
End Number	The number to end call sessions for calls being parked. 3Com recommends the end number to be 899.
Time Out (seconds)	The number of seconds a call session will be kept active for a parked call before the session is terminated.

3 Click *Update* to set the configuration parameters.

Configuring the Server	The *Server Configuration* section enables or disables Virtual Private Network (VPN) translation for URI translation patterns.

Enabling VPN Translation

To enable VPN and speed dial translation:

1 From *Server Setup* heading, click *Server*.

The *Server Configuration* page appears.

2 Click the *VPN Translation* checkbox to enable it. The description for the options are shown in Table 22.

Table 22

Field	Description
VPN Translation	Enable VPN translation to support URI number translation between networks.
IP Centrex	Not supported at this time.
Preferred Language	Not supported at this time.
URI Speed Dial	Not supported at this time.

3 Click *Save*.

2 CONFIGURING THE DIRECTORY SERVER

This chapter provides information on how to configure the directory server through the provisioning server. Use the provisioning server to manage routes; bundles; end points; black and white lists; patterns; out dial patterns; requestors; holidays; calender, week day, and day time bands; URI route maps; and destination URI translation.

> **i** *No more than 50,000 objects should be viewed through the web provisioning server at a time; otherwise, it could overload the web provisioning application server.*

> **i** *Be sure to set your Web browser preferences so that the cache is updated when ever you modify or view a new web page.*

Accessing the Directory Server Configurables

To access the directory server configurables through the web provisioning server:

1 From a standard web browser, log into 3Com VCX 7000 main web page, which is *http://<IP address of the VCX V7000 IP Telephony Server>/voipadmin*.

2 Click *VCX Administrator Interface* and log in.

3 At the top of the main page of the web provisioning server, click *DIRECTORY*.

The directory server's main page appears. See Figure 24.

Figure 24   Directory Server's Main Page

Configuring a Call Route through the Web Provisioning Server

To add a call route using the web provisioning server:

1 Follow the steps according the "Accessing the Directory Server Configurables" section on page 89.

2 Add an end point. For instructions, go to the "Adding End Points" section on page 108.

3 Add a pattern for the end point. For instructions go to the "Adding Patterns" section on page 91.

4 Add an out dial pattern for the end point. For instructions go to the "Adding Out Dial Patterns" section on page 92.

5 Assign the out dial pattern to the end point. For instructions go to the "Adding or Editing Out Dial Patterns of End Points" section in page 112.

6 Add a route. For instructions go to the "Adding Routes" section in page 118.

7 Add URI Route Map. This associates the pattern with the route. For instructions go to the "Adding URI Route Maps" section on page 127.

8 Associate the route with the end point added. For instructions go to the "Assigning End Points and Bundles to Routes" section on page 122.

9 Associate the out dial pattern with the routes added. For instructions go to the "Assigning Out Dial Patterns for Routes" section on page 124.

Managing Patterns   This section provides information on how to add, edit, and delete patterns. Patterns are regular expressions that are used in various tables in the pattern schema.

Adding Patterns   To add patterns:

1 From the directory server main page, click *Patterns*.

2 From the *Pattern* page, click *Add Pattern*.

3 Fill in the fields according to the descriptions below:

- Pattern Name — This is a unique description for the pattern.
- Pattern Value — This is a unique expression pattern. Limited to 64 characters.

4 Click *Save*. The *Patterns* page appears, showing the added pattern.

Editing Patterns   To edit patterns:

1 From the directory server main page, click *Patterns*.

2 From the *Patterns* page, edit a pattern by clicking the pattern name from the *Name* column.

3 Modify the necessary fields:

- Pattern Id — This is automatically assigned and is not editable.
- Pattern Name — This is a unique description for the pattern.
- Pattern Value — This is a unique expression pattern. Limited to 64 characters.

4 Click *Save*. The *Patterns* page appears, showing the edited pattern.

Deleting Patterns   To delete patterns:

1 From the directory provisioning main page, click *Patterns*.

2 From the *Patterns* page, either an individual or multiple patterns can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the pattern.

- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

> **i** *A pattern cannot be deleted if it is associated with a route. You will get a DB Exception error if you try to delete a pattern that is associated with a route.*

The *Patterns* page refreshes, showing the deleted patterns.

Managing Out Dial Patterns

This section provides information on how to add, edit, and delete out dial patterns. An out dial pattern is optional for an end point. Out dial patterns determine how the outbound destination URI is modified. An end point can have many out dial patterns.

Adding Out Dial Patterns

To add out dial patterns:

1 From the directory provisioning main page, click *OutDial Pattern*.

2 The OutDial Patterns page appears. See Figure 25.

Figure 25   OutDial Patterns Window

3 From the *OutDial Patterns* page, click *Add Pattern*.

4 Fill in the fields according to the descriptions below:

- Name — Enter a unique name for the out dial pattern.

- Match Pattern — From the drop-down menu, click a pattern listed in the List of Patterns page.

- Translation String — Type a translation string for the out dial pattern. This determines how the outbound destination URI will be translated.

- E164 Description — If the destination URI is a E.164 number then this field lists the type of the resultant E.164 numbers.

- Number Plan Description — Indicates the type of numbering plan used. The ISDN PRI is provisioned in the outdial pattern. The directory server sends the NPI value to the SIP Proxy. The SIP proxy adds the NPI value to the outgoing SIP INVITE and sends it to the chosen gateway to make the outgoing call. If an NPI value is provisioned it forces an NPI value to be added to the outgoing call parameters or override an existing NPI value.

5 Click *Save*. The *OutDial Patterns* page appears, showing the added out dial pattern.

Editing Out Dial Patterns   To edit out dial patterns:

1 From the directory provisioning main page, click *OutDial Pattern*.

The *OutDial Patterns* page appears.

2 From the *OutDial Patterns* page, edit an out dial pattern by clicking the out dial pattern from the *Name* column.

The *OutDial Pattern Information* page appears.

3 Modify the fields according to the descriptions below:

- Id — This is automatically assigned.

- Name — Type in a unique out dial pattern name.

- Match Pattern — This is automatically assigned according the patterns added. Type a PATTERN ID according to what is listed in the patterns table.

- Translation String — Type a translation string for the out dial pattern. This determines how the outbound destination URI is translated.

- E164 Description — If the destination URI is a E164 number then this field lists the type of the resultant E164 numbers.

- Number Plan Description — Indicates the type of numbering plan used. The ISDN PRI is provisioned in the outdial pattern. The directory server sends the NPI value to the SIP Proxy. The SIP proxy adds the NPI value to the outgoing SIP INVITE and sends it to the chosen gateway to make the outgoing call. If an NPI value is provisioned it forces an NPI value to be added to the outgoing call parameters or override an existing NPI value. A populated NPI is sent in the routSearchResponse.

4 Click *Save*. The *OutDial Patterns* page appears, showing the edited out dial pattern.

Deleting Out Dial Patterns   To delete out dial patterns:

1 From the directory provisioning main page, click *OutDial Pattern*.

The *OutDial Patterns* page appears.

2 From the *OutDialPatterns* page, either an individual or multiple out dial patterns can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the out dial pattern.
- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

> **i** *An outdial pattern cannot be deleted if it is associated with a route. You will get a DB Exception error if you try to delete an outdial pattern that is associated with a route.*

The *OutDial Patterns* page refreshes, showing the deleted out dial patterns.

Managing Requestors   This section provides information on how to add, edit, and delete requestors. Requestors are usually Tier 1 (such as a gateway) or Tier 2 (such as the call controller) components used for source based input parameters for URI Translation and Destination URI Routing.

Adding Requestors   To add requestors:

1 From the directory provisioning page, click *Requestors*.

The *List of Requestors* page appears. See Figure 26.

Figure 26   List of Requestors Window

2 From the *List of Requestors* page, click *Add Requestor*.

The *Add Requestor* page appears.

3 Fill in the fields with the following requestor information.

- Name — Unique requestor name.
- IP Address — IP address in binary.
- IP Port — IP address port number.
- DNS Name — Name of qualified domain name.
- Time Zone Name — Name of time zone such as CST, EST, etc.
- Time Zone Offset — Number of seconds offset from the timezone (GMT)
- Day Light Savings — Determines whether or not daylight saving time is active.
  Off - Not active
  On - Active

4 Click *Save*. The *List of Requestors* page appears, showing the added requestor.

Editing Requestors   To edit a requestor:

1 From the directory provisioning page, click *Requestors*.

The *List of Requestors* page appears.

2 From the *List of Requestors* page, edit a requestor by clicking on the requestor name under the *Name* column.

The *Edit Requestor* page appears.

3 Edit the necessary fields according to these descriptions:

- Id — This value is automatically generated and cannot be changed.

- Requestor Name— Unique requestor name.

- IP Address — IP address in binary.

- IP Port — IP address port number.

- DNS Name — Name of qualified domain name.

- Time Zone Name — Name of time zone such as CST, EST, etc.

- Time Zone Offset — Number of seconds offset from the timezone (GMT)

- Day Light Savings — Determines whether or not daylight saving time is active.
  Off - Not active
  On - Active

4 Click *Save*. The *List of Requestors* page appears, showing the edited requestor.

Deleting Requestors   To delete requestors:

1 From the directory provisioning page, click *Requestors*.

The *List of Requestors* page appears.

2 From the *List of Requestors* page, either an individual or multiple requestors can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the requestor.

- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

3 The *List of Requestors* page refreshes, showing the deleted requestors.

Managing Holidays   This sections provides information on how to add, edit, and delete calendar holidays based on the month and day, and is used as input parameters for URI Translation and Routing.

Adding Holidays   To add holidays:

1 From the directory provisioning page, click *Holidays*.

The *List of Holidays* page appears. See Figure 27.

Figure 27   List of Holidays Window

2 From the *List of Holidays* page, click *Add Holiday*.

The *Add Holiday* page appear. See Figure 28.

Figure 28   Add Holiday Window

3 Fill in the fields with the following holiday information.

- Name — Type a unique holiday name.
- Month — From drop-down menu, click month of year for holiday.
- Day — From drop-down menu, click day of month for holiday.

4 Click *Save*. The *List of Holidays* page appears, showing the added holiday.

Editing Holidays   To edit holidays:

1 From the directory provisioning page, click *Holidays*.

The *List of Holidays* page appears.

2 From the *List of Holidays* page, edit a holiday by clicking one from the *Name* column.

The *Edit Holiday* page appears.

3 Edit the necessary fields according to these descriptions:

- Holiday Id — This value is automatically generated and cannot be changed.
- Name — Type a unique holiday name.
- Month — From drop-down menu, click month of year for holiday.
- Day — From drop-down menu, click day of month for holiday.

4 Click *Save*. The *List of Holidays* page appears, showing the edited holiday.

Deleting Holidays   To delete a holiday:

1 From the directory provisioning page, click *Holidays*.

The *List of Holidays* page appears.

2 From the *List of Holidays* page, either an individual or multiple holidays can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the holiday.

- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

The *List of Holidays* page refreshes, showing the deleted holidays.

Managing Week Day Bands   This section provides information on how to add, edit, and delete week day time bands. Week day bands are used as input parameters for URI Translation and Routing.

Adding Week Day Bands   To add week day bands:

1 From the directory provisioning page, click *Week Day Bands*.

The *List of Week Day Bands* page appears. See Figure 29.

Figure 29   List of Week Day Bands Window

2 From the *List of Week Day Bands* page, click *Add Week Day Band*.
The *Add Week Day Bands* page appears. See Figure 30.

Figure 30   Add Week Day Bands Window
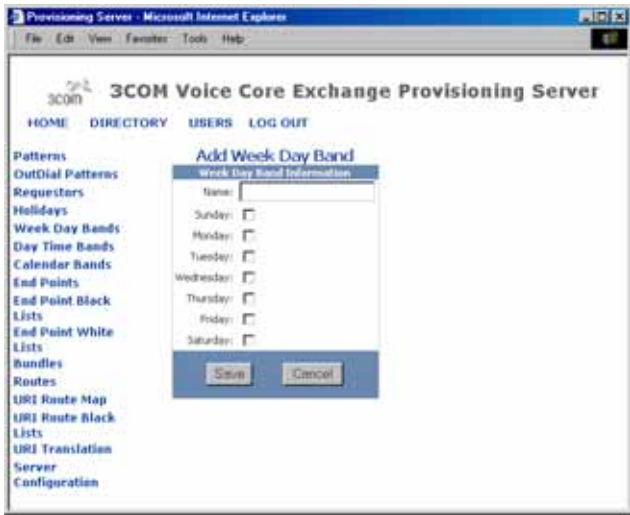
3 In the *Name* field, type a description.

4 Click the checkboxes for days to include in the week day band.

5 Click *Save*. The *List of Week Day Bands* page appears, with the added
week day band.

Editing Week Day Bands To edit week day bands:

1 From the directory provisioning page, click *Week Day Bands*.

The *List of Week Day Bands* page appears.

2 From the *List of Week Day Bands* page, edit a week day band by clicking
a week day band from the *Name* field.

The *Edit Week Day Band* page appears.

3 Edit the fields according to these descriptions:

- Band Id — This value is automatically generated and cannot be
  changed.

- Name — A description of the week day band.

4 Click *Save*. The *List of Week Day Bands* page appears, showing the edited
week day band.

Deleting Week Day Bands To delete week day bands:

1 From the directory provisioning page, click *Week Day Bands*.

The *List of Week Day Bands* page appears.

2 From the *List of Week Day Bands* page, either an individual or multiple
week day band can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as
  the week day band.

- Multiple — Check each box preceding the *Name* column and then
  click *Delete Selected*.

The *List of Week Day Bands* page refreshes, showing the deleted week
day bands.

Managing Day Time Bands

This section provides information on how to add, edit, and delete day time bands. Day time bands are used as input parameters for URI Translation and Routing and are based on the hour, minute, and second for a single day.

Adding Day Time Bands

To add day time bands:

1 From the directory provisioning page, click *Day Time Bands*.

The *List of Day Time Bands* page appears. See Figure 31.

Figure 31 Day Time Bands Window

2 From the *List of Day Time Bands* page, click *Add Day Time Band*.

The *Add Day Time Band* page appears. See Figure 32.

Figure 32 Add Day Time Band Window

3 Fill in the fields with the following day time band information.

- Name — Type a unique calendar band name

- Start Time — From the drop-down lists, select the correct Hour, Minute, and Second for the daytime band to start. The drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

- End Time — From the drop-down lists, select the correct Hour, Minute, and Second for the daytime band to end. The drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

4 Click *Save*. The *List of Day Time Bands* page appears, showing the new day time band.

Editing Day Time Bands

To edit day time bands:

1 From the directory provisioning page, click *Day Time Bands*.

The *List of Day Time Bands* page appears.

2 From the *List of Day Time Bands* page, edit a day time band by clicking the day time band from the *Name* column.

The *Edit Day Time Band* page appears.

3 Edit the necessary fields according to these descriptions:

■ Band Id — This value is automatically generated and cannot be changed.

■ Name — Type a unique calendar band name

■ Start Date — From the drop-down lists, select the correct Month, Date, Year, Hour, Minute, and Second for the calendar band to start. The time drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

■ End Date— From the drop-down lists, select the correct Month, Date, Year, Hour, Minute, and Second for the calendar band to end. The drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

4 Click *Save*. The *List of Day Time Band* page appears, showing the edited day time band.

Deleting Day Time Bands   To delete day time bands:

1 From the directory provisioning page, click *Day Time Bands*.

The *List of Day Time Bands* page appears.

2 From the *List of Day Time Bands* page, either an individual or multiple holidays can be deleted.

■ Individual — From the *Action* column, click *Delete* in the same row as the day time band.

■ Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

The *List of Day Time Bands* page refreshes, showing the deleted day time band.

| **Managing Calendar Bands** | This section provides information on how to add, edit, and delete calendar bands. Calendar bands are used as input parameters for URI Translation and Routing and are based on a calendar time band table, which includes the year, month, day, hour, minute, and second. |

| **Adding Calendar Bands** | To add calendar bands: |

1 From the directory provisioning page, click *Calendar Bands*.

The *List of Calendar Bands* page appears. See Figure 33.

Figure 33 List of Calendar Bands Window

2 From the *List of Calendar Bands* page, click *Add Calendar Band*.

The *Add Calendar Band* page appears. See Figure 34.

Figure 34   Add Calendar Band Window

3 Fill in the fields with the following calendar band information.

■ Name — Type a unique calendar band name

■ Start Date — From the drop-down lists, select the correct Month, Date, Year, Hour, Minute, and Second for the calendar band to start. The time drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

■ End Date — From the drop-down lists, select the correct Month, Date, Year, Hour, Minute, and Second for the calendar band to end. The drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

4 Click *Save*. The *List of Calendar Bands* page appears, showing the added calendar band.

Editing Calendar Bands

To edit calendar bands:

1 From the directory provisioning page, click *Calendar Bands*.

The *List of Calendar Bands* page appears.

2 From the *List of Calendar Bands* page, edit a calendar band by clicking one from the *Name* column.

The *Edit Calendar Band* page appears.

3 Edit the necessary fields according to these descriptions:

- Band Id — This value is automatically generated and cannot be changed.

- Name — Type a unique calendar band name

- Start Date — From the drop-down lists, select the correct Month, Date, Year, Hour, Minute, and Second for the calendar band to start. The time drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

- End Date — From the drop-down lists, select the correct Month, Date, Year, Hour, Minute, and Second for the calendar band to end. The drop-down lists use military time, for example, 0 equals 12:00:00AM (midnight) and 23:00:00 equals 11:00:00PM.

4 Click *Save*. The *List of Calendar Bands* page appears, showing the edited calendar band.

Deleting Calendar Bands   To delete calendar bands:

1 From the directory provisioning page, click *Calendar Bands*.

The *List of Calendar Bands* page appears.

2 From the *List of Calendar Bands* page, either an individual or multiple calendar bands can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the calendar band.

- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

The *List of Calendar Bands* page refreshes, showing the deleted calendar bands.

Managing End Points	This section provides information on how to add, edit, and delete end points, and manage the out dial patterns associated with them. An end point is usually a Tier 1 component that is a destination element in a route. End points are assigned to routes and are returned to the signaling application in the route response.
Adding End Points	To add end points:

1 From the directory provisioning page, click *End Points*.

The *List of End Points* page appears. See Figure 35.

Figure 35 List of End Points Window
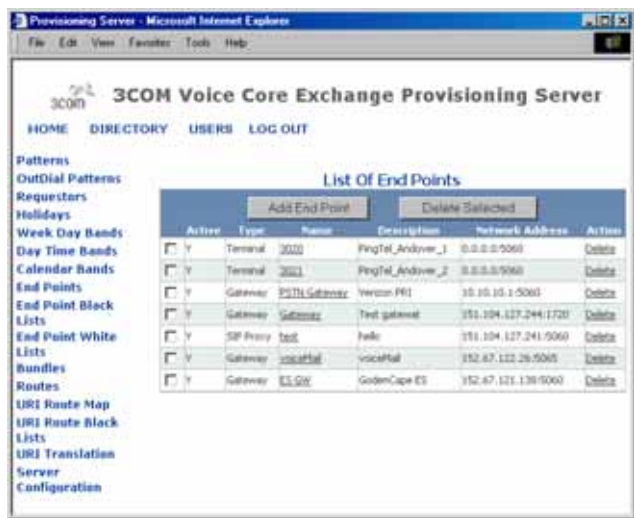
2 From the *List of End Points* page, click *Add End Point*.

The *End Point* page appears. See Figure 36.

Figure 36   End Point Window

3 From the drop-down menu, select a type of end point to add, see Table 23 for possible end point combinations:

- Type — The device type that is associated with the end point. The supported devices are listed in Table 23.

- Active —

    - Yes = active

    - No = inactive

- Description — Unique description of the end point.

- Click either the IP Address or DNS radio button and type an IP address or DNS in the field below.

- IP Port — The IP Port number of the address type, which is automatically entered depending on end point type.

- Transport Protocol — Defines the transport protocol to use for the end point.

- Signaling Protocol — Defines the signaling protocol for the end point.

- Call Model — Defines the call model to use for the end point.

- Foreign Gatekeeper Secret — Not Supported

Table 23   Supported End Point Combinations

	Default IP Port	Transport Protocol	Signaling Protocol	Call Model	Foreign Gatekeeper Secret
Gateway	5060*	TCP or UDP	SIP	Redirect, Fully Routed, or Partially Routed	N/A
Gatekeeper	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
Terminal	5060*	TCP or UDP	SIP	Redirect, Fully Routed, or Partially Routed	N/A
Foreign Gatekeeper	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
Session Manager	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
Call Processor	5060*	TCP or UDP	SIP	Redirect, Fully Routed, or Partially Routed	N/A

* 3Com only supports default SIP Ports.

4 Click *Save*. The *List of End Points* page appears, showing the end point added.

Editing End Points   To edit end points:

1 From the directory provisioning page, click *End Points*.

The *List of End Points* page appears.

2 From the *List of End Points* page, edit end points by clicking an end point from the *Name* column.

3 Edit the necessary fields according to the descriptions provided below:

- ID — This value is automatically generated and cannot be changed.
- Active —
  - Yes = active
  - No = inactive
- Description — Unique description of the end point.
- Click either the IP Address or DNS radio button and type an IP address or DNS in the field below.
- IP Port — The IP Port number of the address type, which is automatically entered depending on end point type.
- Transport Protocol — Defines the transport protocol to use for the end point.
- Signaling Protocol — Defines the signaling protocol for the end point.
- Call Model — Defines the call model to use for the end point.

4 Click *Save*. The *List of End Points* page appears, showing the edited end points.

Deleting End Points   To delete end points:

1 From the directory provisioning page, click *End Points*.

The *List of End Points* page appears.

2 From the *List of End Points* page, either an individual or multiple end point can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the end point.
- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

> **i** *An end point cannot be deleted if it is associated with a route. You will get a DB Exception error if you try to delete an end point that is associated with a route.*

The *List of End Points* page refreshes, showing the deleted end points.

Adding or Editing Out Dial Patterns of End Points

To add or edit out dial patterns of end points:

1 From the directory provisioning page, click *End Points*.

The *List of End Points* page appears.

2 From the *List of End Points* page, edit end points by clicking an end point from the *Name* column.

3 Click *OutDial Patterns*.

The *EndPoints - OutDial Patterns* page appears. See Figure 37.

Figure 37 EndPoint - OutDIal Patterns Window
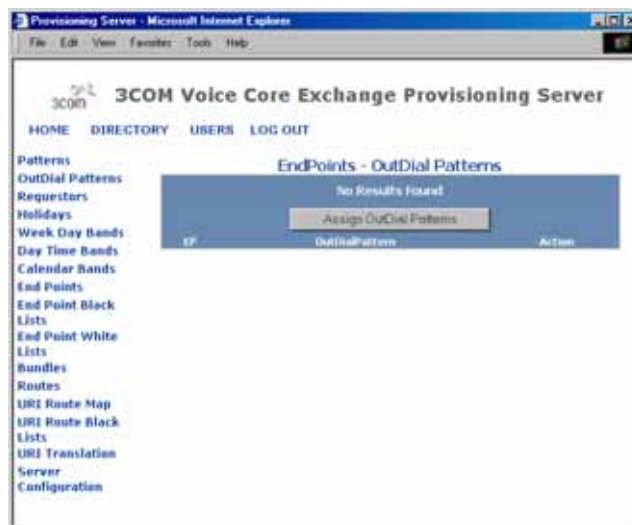
4 To assign or edit the out dial patterns associated with the end point, click *Assign OutDial Patterns*.

The *New OutDial Patterns for EndPoint* page appears. See Figure 38.

Figure 38 New OutDial Patterns for EndPoint Window
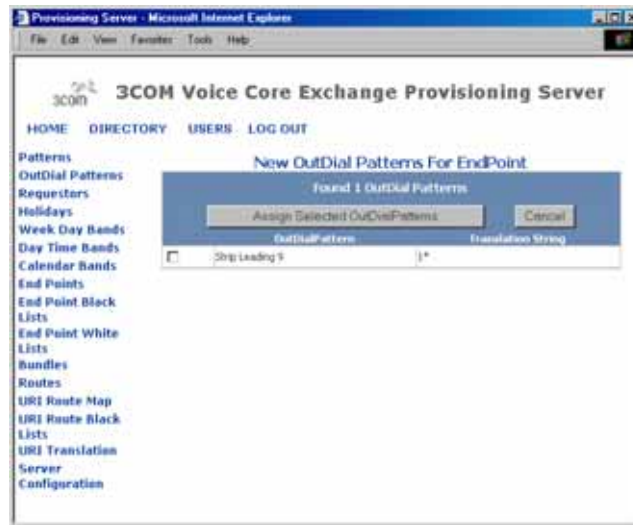
> **i** *The out dial patterns must be set up according to the instructions provided in the "Managing Out Dial Patterns" section to have any out dial pattern options to choose from.*

5 Add out dial patterns to end points by clicking the checkboxes preceding the *OutDialPattern* column.

6 Click *Assign Selected OutDialPatterns*. The *EndPoints - OutDial Patterns* page appears, showing the assigned out dial patterns.

Deleting Out Dial Patterns from Existing End Points

To delete out dial patterns from existing end points:

1 From the directory provisioning page, click *End Points*.

The *List of End Points* page appears.

2 From the *List of End Points* page, select the end point to delete an out dial pattern from by clicking an end point from the *Name* column.

3 Click *OutDial Patterns*.

The *EndPoints - OutDial Patterns* page appears.

> **i** *The out dial patterns must be set up according to the instructions provided in the "Managing Out Dial Patterns" section to have any out dial pattern options to choose from.*

4 From the *EndPoints - OutDial Patterns* page, either an individual or multiple out dial pattern can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the out dial pattern.

- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

The *EndPoints - OutDial Patterns* page refreshes showing the deleted out dial patterns.

Managing End Point Black Lists

This section provides information on how to add and delete end points and the associated patterns from a black list. A black list is a list of end points for a DNIS that a person or ANI is barred from going to. A route can be black listed based on the source and an end point can be black listed for a DNIS. Also a combination of the route to the end point can be black listed.

Adding End Point Black Lists

To add end point black lists:

1 From the directory provisioning page, as shown in Figure 24, click *End Point Black Lists*.

The *EndPoint Blacklists* page appears. See Figure 39.

Figure 39   EndPoint Blacklist Window

2 Click *Add Blacklist*.

The *New EndPoint to Blacklist* page appears. See Figure 40.

Figure 40   New Endpoints To Blacklist Window
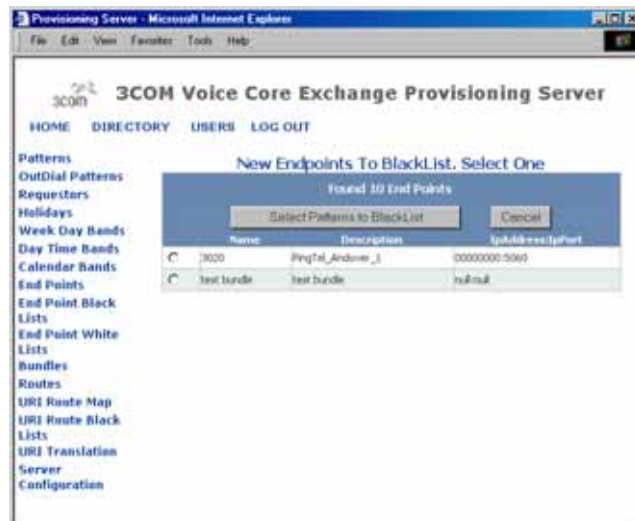
3 Click the radio button preceding the *Name* column for the end point to black list.

4 Click *Select Patterns to BlackList*. The *List of Patterns* page appears.

5 Click the checkboxes preceding the *Pattern Name* field for the patterns to associate with the black listed end point.

6 Click *Add*. The *EndPoint Blacklist* page appears, showing the black listed end points and the associated patterns.

Deleting End Point Black Lists   To delete end point black lists:

1 From the directory provisioning page, as shown in Figure 24, click *End Point Black Lists*.

The *EndPoint Blacklists* page appears.

2 From the *EndPoint Blacklists* page, either an individual or multiple end point black lists can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the end point.

- Multiple — Check each box preceding the *End Point* column and then click *Delete Selected*.

The *EndPoint Blacklists* page refreshes, showing the deleted end point black list.

Managing End Point White Lists   This section provides information on how to add and delete end points and the associated patterns from a white list.

Adding White Lists   To add end point white lists:

1 From the directory provisioning page, see Figure 24, click *End Point White Lists*.

The *EndPoint Whitelists* page appears. See Figure 41.

Figure 41   EndPoint Whitelists Window

2 Click *Add Whitelist*.

The *New EndPoint to Whitelist* page appears. See Figure 42.

Figure 42   New Endpoint to Whitelist Window

3 Click the radio button preceding the *Name* column for the end point to white list.

4 Click *Select Patterns to WhiteList*.

The *List of Patterns* page appears.

5 Click the checkboxes preceding the *Pattern Name* field for the patterns to associate with the white listed end point.

6 Click *Add*. The *EndPoint Whitelist* page appears, showing the white listed end points and the associated patterns.

Deleting End Point White Lists   To delete end point white lists:

1 From the directory provisioning page, as shown in Figure 24, click *End Point White Lists*.

The *EndPoint Whitelists* page appears.

2 From the *EndPoint Whitelists* page, either an individual or multiple white list end point can be deleted.

■ Individual — From the *Action* column, click *Delete* in the same row as the end point.

■ Multiple — Check each box preceding the *End Point* column and then click *Delete Selected*.

The *EndPoint Whitelists* page refreshes, showing the deleted end point white list.

Managing Routes   This section provides information on how to add, edit, or delete routes; edit bundles and end points assigned to it; or edit the route properties such as the route name, sort order, and contact code.

Adding Routes   To add routes:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears, which is described in Table 24. See Figure 43.

Figure 43   List of Routes Window
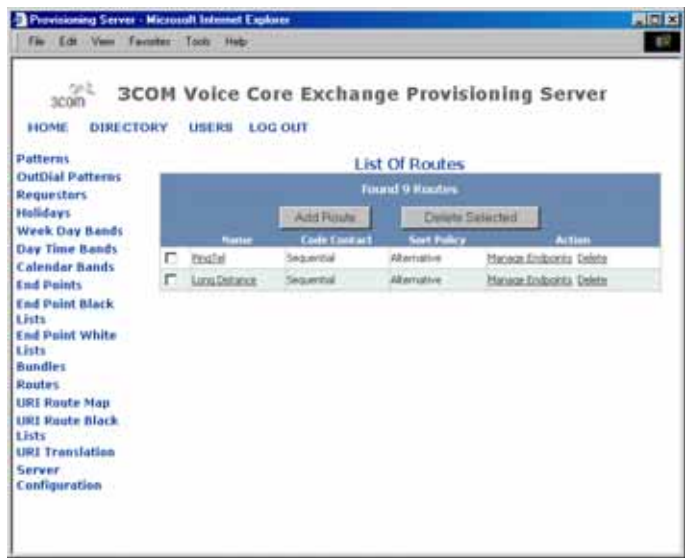
Table 24 lists the fields for List of Routes.l

Table 24   List of Routes Field Descriptions

Name	Description
	Use this checkbox to delete more than one route at a time. If a box is checked, and then the Delete Selection button is clicked, all of the checked routes are deleted.
Name	The name of the route you assign.
Code Contact	This is used by the SIP Proxy to determine how the end points in the route are activated.
	Sequential - Tries to contact the end points in the route serially.
	Parallel - Tries to contact all the end points in the route at the same time.
Sort Policy	This determines the route sorting method. These methods are applied on a route basis. A route sorting policy determines how the end points are sorted when returned to the signaling application.
	The following codes are used:
	1 - Alternative - The signaling application is returned a list of routes with no ordering. The signaling application tries the next route if the previous route is unavailable. This is the default.
	2 - Load Balanced - This is the same as Alternative routing, but the list is ordered by the load information from the signaling applications.
Action	Manage EndPoints — Click to edit the route and its properties.
	Delete — By clicking delete, you permanently delete that particular route from the route table.
	Note: *You will not be warned that you are about to delete a route with this option. Only the Delete Selection button warns you.*

2 The *List of Routes* page, click *Add Route*.

The *Route Information* page appears. See Figure 44.

Figure 44   Route Information Window

The following fields appear in the *Add Routes* page, which are described in Table 24:

- Name
- Contact Code
- Sort Order

3 Fill in the information for the new route.

4 Click *Save*. The *List of Routes* page appears, showing the new route.

Editing Routes   To edit routes:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, edit a route by clicking the route from the *Name* column.

The *Route Information* page appears.

3 Edit the fields according to the descriptions in Table 24.

4 Click *Save*.

The *List of Routes* page appears, showing the edited route.

Deleting Routes   To delete routes:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, either an individual or multiple route can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the route.

- Multiple — Check each box preceding the *Name* column and then click *Delete Selected*.

The *List of Routes* page refreshes, showing the deleted routes.

Assigning End Points and Bundles to Routes   To associate end points and bundles to routes:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, click *Manage EndPoints* from the *Action* column of the route to associate an end point or bundle to the route.

The *Route - EndPoints* page appears.

3 From the *Route - EndPoints* page, click *Assign End Point*.

The *New EndPoints For Route* page appears. See Figure 45.

Figure 45   New EndPoints For Route Window

4 Assign an end point and/or bundle to a route by clicking the checkboxes preceding the *Type* column.

5 Click *Assign Selected EndPoints*. The *Route - EndPoints* page appears, showing the assigned end points and/or bundles.

Editing Priorities of Bundles or End Points Assigned to a Route

To edit the priorities of bundles or end points assigned to routes:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, click *Manage EndPoints* from the *Action* column for the route that the priority of the end point and/or bundle needs updating.

The *Route - EndPoint* page appears, showing all of the bundles and/or end points associated with that route.

3 Click the checkboxes preceding the *Name* column for each end point that needs updating.

4 From the *Sort Order* column, change the priority of the end points.

5 Click *Update*. The *Route - EndPoint* page refreshes, showing the updated end points.

Unassigning End Points or Bundles Assigned to Routes

To unassign bundles and/or end points assigned to routes:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, click *Manage EndPoints* from the *Action* column for the route that needs to have an end point and/or bundle unassigned from.

The *Route - EndPoint* page appears, showing all of the end points and/or bundles associated with that route.

3 From the *Route - EndPoint* page, either an individual or multiple end points and/or bundles can be unassigned.

- Individual — From the *Action* column, click *UnAssign* in the same row as the end point and/or bundle.

- Multiple — Check each box preceding the *Name* column and then click *Unassign Selected*.

The *Route - EndPoint* page refreshes, showing the updated route.

Assigning Out Dial Patterns for Routes

To assign out dial patterns to either an end point or bundle of a route:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, click *Manage EndPoints* from the *Action* column for the route that needs to have an out dial pattern assigned to it.

The *Route - EndPoint* page appears, showing all of the end points and/or bundles associated with that route. See Figure 46.

Figure 46   Route - EndPoint Window
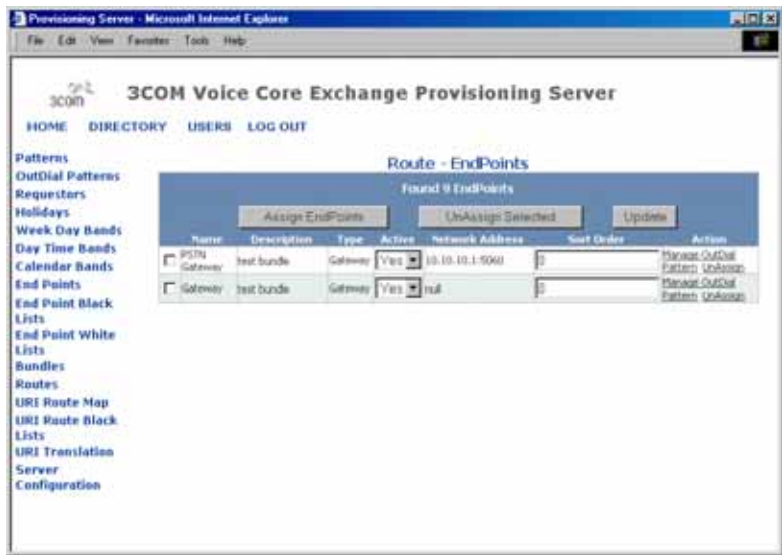
3 From the *Route - EndPoint* page, in the *Action* column, click *Manage OutDial Pattern* for the bundle to modify.

The *Route - EndPoints - OutDial Patterns* page appears, showing the out dial patterns associated with either bundle or end point of the route.

4 Click *Assign OutDial Pattern*.

The *New OutDial Patterns For Route - EndPoint* page appears, showing the available out dial patterns available to assign.

5 Click the checkboxes preceding the *OutDialPattern* column for the out dial patterns to assign.

Click *Assign Selected OutDial Patterns*. The *Route - EndPoints - OutDial Patterns* page appears, showing recently assigned out dial patterns associated with either the bundle or end point of that route. See Figure 47.

Figure 47   Route - EndPoints - OutDial Patterns Window

Unassigning Out Dial Patterns of Routes

To unassign out dial patterns from either an end point or bundle associated with a route:

1 From the directory provisioning page, as shown in Figure 24, click *Routes*.

The *List of Routes* page appears.

2 From the *List of Routes* page, click *Manage EndPoints* from the *Action* column for the route that needs to have an out dial pattern unassigned from it.

The *Route - EndPoint* page appears, showing all of the end points and/or bundles associated with that route. See Figure 46.

3 From the *Route - EndPoint* page, in the *Action* column, click *Manage OutDial Pattern* for the bundle or end point to modify.

The *Route - EndPoints - OutDial Patterns* page appears, showing the out dial patterns associated with either bundle or end point of the route. See Figure 47.

4 From the *Route - EndPoints - OutDial Patterns* page, either an individual or multiple out dial pattern can be deleted.

- Individual — From the *Action* column, click *Delete* in the same row as the out dial pattern.

- Multiple — Check each box preceding the *Route* column and then click *Unassign Selected*.

The *Route - EndPoints - OutDial Patterns* page refreshes, verifying the out dial pattern was unassigned.

Managing URI Route Maps

This section provides information on how to add and delete URI route maps. A URI route map maps destination URIs to route IDs using various routing policies and source based input parameters.

Source based input parameters are used for two functional components of the directory server, which are destination URI translation and destination URI to route mapping. Destination URI translation translates the URI, which can be a string URI or a E.164 phone number, into another URI. This translation can be a complete replacement of the URI or a partial replacement. The destination URI to route mapping associates the destination URI (URI/DNIS phone number) to a specific route.

The source based input parameters allow the server to vary the translation or route mapping based on the source. For example, translation of the same URI would be different based on which gatekeeper the request came from:

Table 25 URI Translation

Direct Requestor	Destination URI/DNIS	Translation
Gatekeeper 1	312-555-1212	708-555-1212
Gatekeeper 2	312-555-1212	630-555-1212

The same logic applies for destination URI to route mapping. For example, if the request comes from gatekeeper 1 then the route would be different than if the request comes from gatekeeper 2.

Adding URI Route Maps

To add URI route maps:

1 From the directory provisioning page, see Figure 24, click *URI Route Map*.

The *List Routes Mapped To URI Patterns* page appears. See Figure 48.

Figure 48   List Routes Mapped To URI Patterns Window
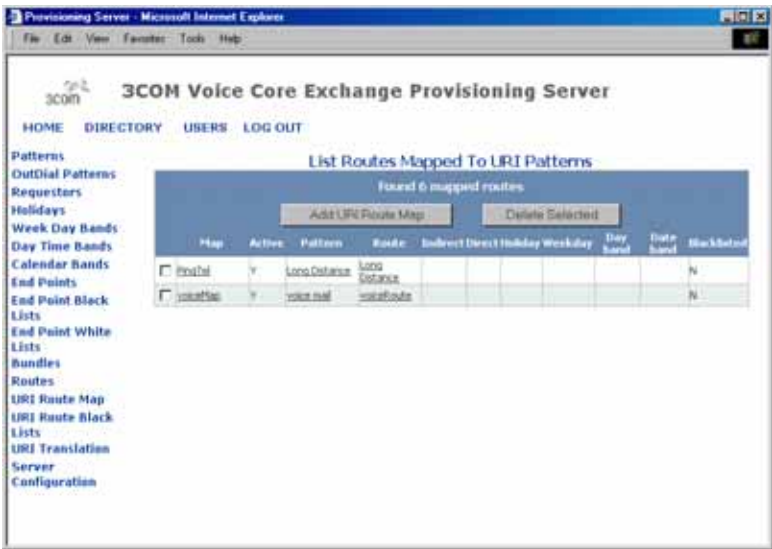
2 From the *List Routes Mapped To URI Patterns* page, click *Add URI Route Map*.

The *URI Route Map* page appears. See Figure 49.

Figure 49 URI Route Map Window

3 Fill in the fields with the information you need to add your mapped route. This associates a pattern with a route. Descriptions for each field are below.

There are 5 categories of source based input parameters. There is a specific ordering of how these categories are used to determine the resultant output. Database records are returned for the first categories that have a match. The search order is as follows:

a Combination of or separate instances of Direct Requestor, Indirect Requestor, or Holiday

b Holiday only

c Day time band and week day band

d Calendar Band (Calendar Time)

e No source based input parameters

For example, if a URI map does not have combination records where a Direct Requestor is defined as "Gatekeeper 2" and a Holiday is defined as "New Years", but there is a record for "New Years" only "New Years" is returned.

- Active — If checked it is active, if not checked it is inactive.
- Blacklisted — If checked it is black listed, if not checked it is not black listed.
- Name — Type a unique name for the URI Route Map.
- Route — This is a defined route. To add a route to select from the drop-down menu, go to the "Managing End Point Black Lists" section.
- Pattern — This is a defined pattern. To add a pattern to select from the drop-down menu, go to the Figure 24 section.
- Sourced Based — If checked, it will associate the defined inputs (Direct and Indirect Requestors, Day Band, and Date Band) to the URI route map. If not check, no source based inputs will be associated with the URI route map.

If using sourced based inputs, click one of the radio buttons and select a specific record type from the drop-down lists as described below:

- Direct and Indirect Requestors:
  - Direct Requestor — This is a defined requestor and is normally an IP Address of a 2nd Tier component such as a Gatekeeper or SIP Proxy. To add a requestor to select from the drop-down menu, go to the "Adding Requestors" section. This can be used in combination with Indirect Requestor and/or Holiday.
  - Indirect Requestor — This is a defined requestor and is normally an IP Address of a 1st Tier component such as a Gateway. To add a requestor to add from the drop-down menu, go to the "Adding Requestors" section. This can be used in combination with Direct Requestor and Holiday.
  - Holiday — This is a defined holiday. To add a holiday to select from the drop-down menu, go to the "Adding Holidays" section. This can be used alone or in combination with a direct and or indirect requestor.
- Day Bands:
  - Weekday Band — This is a defined week day band that represents certain days of the week such as monday through friday. To add a weekday band to select from the drop-down menu, go to the "Adding Week Day Bands" section. A day time band and a week day band must be used together, but cannot be used in combination with other source based inputs.

■ Day Band — This is a defined day time band that represents a time band within one day (0800 - 1200 hours). The resolution is done to seconds. To add a day time band to select from the drop-down menu, go to the "Adding Day Time Bands" section. A day time band and a week day band must be used together, but cannot be used in combination with other source based inputs.

■ Calendar Bands — This is a defined specific calendar band (calendar band) such as 1/1/01 to 6/1/01. The calendar time band includes use of the time component down to the second. To add a calendar band to select from the drop-down menu, go to the "Adding Calendar Bands" section. This cannot be used in combination with other source based inputs.

4 Click *Save*. The *List Routes Mapped To URI Patterns* page appears, showing the new URI mapped route.

Deleting URI Route Maps   To delete URI route maps:

1 From the directory provisioning page, as shown in Figure 24, click *URI Route Map*.

The *List Routes Mapped To URI Patterns* page appears. See Figure 48.

2 From the *List Routes Mapped To URI Patterns* page, delete URI route maps by clicking the checkboxes preceding the *Map* column.

3 Click *Delete Selected*. The *List of Available Mapped Routes* page refreshes showing the deleted URI route maps.

Globally Editing URI Mapped Routes Source Based Routing Properties   To edit sourced based routing properties associated within a particular URI route map:

1 From the directory provisioning page, as shown in Figure 24, click *URI Route Map*.

The *List Routes Mapped To URI Patterns* page appears. See Figure 48.

2 From the *List Routes Mapped To URI Patterns* page, click any active link in the same row as the URI route map. There are 2 options available:

■ Click a link in the *Map* column — if this link is selected, only the properties of that URI are modified.

■ Click a link in any column other than the *Map* column — if one of these links is selected, any modifications to the specific link is globally applied to all things associated with that link. For example, if a pattern is modified, anything that uses that pattern is modified.

3 A new window appears, that is related to the type of link selected. Make the necessary changes and click *Save*.

4 To verify that the URI Map Route was edited, click *URI Route Map* from the left-hand panel.

Managing URI Route Black Lists

This section provides information on how to add and delete black listed end points to URI route maps.

> ⓘ *End points need to be black listed before they can be added to a URI route map. To black list an end point, see the "Adding End Point Black Lists" section.*

Adding Black Listed End Points to URI Route Maps

To add black listed end points to a URI route map:

1 From the directory provisioning page, as shown in Figure 24, click *URI Route Black Lists*.

The *List of Blacklisted EndPoints For A URI Route* page appears. This provides a list of every URI route map and associated black listed end points. See Figure 50.

Figure 50 List of Blacklisted EndPoints For A URI Route Window

2 From the *List of Blacklisted EndPoints For A URI Route* page, click *Add Blacklisted Endpoint*.

   The *Select A URI Route* page appears.

3 From the *Add Endpoint Blacklist* column, click *Add Endpoint Blacklist* for the URI Route that needs to have end points black listed on.

4 The *Available Route Endpoints* page appears.

5 From the *Available Route Endpoints* page, click the checkbox preceding the *Endpoint Name* column for each end point that needs to be black listed, and then click *Add Selected*. The *List of Blacklisted EndPoints For A URI Route* page appears showing every black listed end point and their associated URI route map.

Deleting Black Listed End Points from a URI Route Map

To delete black listed end point from a URI Route Map:

1 From the directory provisioning page, as shown in Figure 24, click *URI Route Black Lists*.

   The *List of Blacklisted EndPoints For A URI Route* page appears. This provides a list of every URI route map and associated black listed end points.

2 From the *List of Blacklisted EndPoints For A URI Route* page, either an individual or multiple end point can be unassociated with the URI route map.

- Individual — From the *Action* column, click *Delete* in the same row as the end point.

- Multiple — Check each box preceding the *Uri Route Name* column and then click *Delete Selected*.

3 The *List of Blacklisted EndPoints For A URI Route* refreshes, verifying the black listed end points have been unassociated with the URI route map.

Managing URI Translation

This section provides information on how to add and delete URI translation strings. URI translation is based on source input parameters and translation strings.

Understanding Translation Algorithms

This section is provided to describe how pattern matching and translation strings are used. The outbound destination URI is translated using the match pattern ID and translation string. The match string is a regular expression that matches the outbound destination URI. The translation string determines how the destination URI is translated.   The translation string is specified with a semi-regular expression format. A translation string with an asterisk (*) means perform no translation just use the full destination URI string that matched in the match string. A translation string with pre-pended characters has those characters pre-pended to the translated destination URI.

For example:

Table 26   Destination URI Translation Algorithm

Destination URI	Match String	Translation String	Translated Destination URI	Comments
18472222411	1847*	*	2222411	Strips off the area code
4413012345	44*	*	13012345	Strips off the country code
6302221234	630*	1630*	16302221234	Pre-pends a 1
3125551212	*	*	3125551212	No translation, this is the default
011449622112345	01144*	*	622112345	Strips off the international prefix and country code

Adding Destination URI Translations

To add destination URI translations:

1 From the directory provisioning page, as shown in Figure 24, click *URI Translation*.

The *List Outdial Patterns Mapped To URI Patterns* page appears.

2 From the *List of Available URI Translations* page, click *Add URI Translation*.

The *URI Translation* page appears.

3 Fill in the fields with the information you need to add your mapped route. This associates a pattern with a route. Descriptions for each field are below.

There are five categories of source based input parameters. There is a specific ordering of how these categories are used to determine the resultant output. The first category of the search order to have a match is returned first. The search order is as follows:

a Combination of or separate instances of Direct Requestor, Indirect Requestor, or Holiday

b Holiday only

c Day time band and week day band

d Calendar Band (Calendar Time)

e No source based input parameters

For example, if a URI map does not have combination records where a Direct Requestor is defined as "Gatekeeper 2" and a Holiday is defined as "New Years", but there is a record for "New Years" only "New Years" is returned.

■ Active — If checked it is active, if not checked it is inactive.

■ Blacklisted — If checked it is black listed, if not checked it is not black listed.

■ Name — Type a unique name for the URI Route Map.

■ Route — This is a defined route. To add a route to select from the drop-down menu, go to the "Managing End Point Black Lists" section.

■ Pattern — This is a defined pattern. To add a pattern to select from the drop-down menu, go to the Figure 24 section.

- Sourced Based — If checked, it will associate the defined inputs (Direct and Indirect Requestors, Day Band, and Date Band) to the URI route map. If not check, no source based inputs will be associated with the URI route map.

If using sourced based inputs, click one of the radio buttons and select a specific record type from the drop-down lists as described below:

- Direct and Indirect Requestors:
  - Direct Requestor — This is a defined requestor and is normally an IP Address of a 2nd Tier component such as a Gatekeeper or SIP Proxy. To add a requestor to select from the drop-down menu, go to the "Adding Requestors" section. This can be used in combination with Indirect Requestor and/or Holiday.
  - Indirect Requestor — This is a defined requestor and is normally an IP Address of a 1st Tier component such as a Gateway. To add a requestor to add from the drop-down menu, go to the "Adding Requestors" section. This can be used in combination with Direct Requestor and Holiday.
  - Holiday — This is a defined holiday. To add a holiday to select from the drop-down menu, go to the "Adding Holidays" section. This can be used alone or in combination with a direct and or indirect requestor.
- Day Bands:
  - Weekday Band — This is a defined week day band that represents certain days of the week such as monday through friday. To add a weekday band to select from the drop-down menu, go to the "Adding Week Day Bands" section. A day time band and a week day band must be used together, but cannot be used in combination with other source based inputs.
  - Day Band — This is a defined day time band that represents a time band within one day (0800 - 1200 hours). The resolution is done to seconds. To add a day time band to select from the drop-down menu, go to the "Adding Day Time Bands" section. A day time band and a week day band must be used together, but cannot be used in combination with other source based inputs.
- Calendar Bands — This is a defined specific calendar band (calendar band) such as 1/1/01 to 6/1/01. The calendar time band includes use of the time component down to the second. To add a calendar band

to select from the drop-down menu, go to the "Adding Calendar Bands" section. This cannot be used in combination with other source based inputs.

4 Click *Save*. The *List OutDial Patterns Mapped To URI Patterns* page appears, showing the added URI translation.

Globally Editing URI Translation Sourced Based Route Properties

To edit out dial patterns properties associated within a particular URI translation:

1 From the directory provisioning page, as shown in Figure 24, click *URI Translation*.

The *List Outdial Patterns Mapped To URI Patterns* page appears.

2 From the *List Outdial Patterns Mapped To URI Patterns* page, click any active link in the same row as the URI translation. There are 2 options available:

■ Click a link in the *Name* column — if this link is selected, only the properties of that URI translation are modified.

■ Click a link in any column other than the *Name* column — if one of these links is selected, any modifications to the specific link is globally applied to all things associated with that link. For example, if a pattern is modified, anything that uses that pattern is modified.

3 A new window appears, that is related to the type of link selected. Make the necessary changes and click *Save*.

4 To verify that the URI translation was edited, click *URI Translation* from the left-hand panel.

Deleting URI Translations

To delete URI translation strings:

1 From the directory provisioning page, as shown in Figure 24, click *URI Translation*.

The *List Outdial Patterns Mapped To URI Patterns* page appears.

2 From the *List Outdial Patterns Mapped To URI Patterns* page, check each box preceding the *Name* column and then click *Delete Selected*. The *List Outdial Patterns Mapped To URI Patterns* page refreshes, verifying the URI translation was deleted.

Server Configuration	The *Server Configuration* option is used to globally configuring all routes in a directory server database. The *Directory Server Configuration* page represents a sequence of features that can be provisioned and applied globally. All of the features need to be provisioned first in order to be applied to the routes. For instance, Holidays need to be provisioned before any results can be expected by enabling the global Holiday feature.
Globally Configuring Routes	To globally provision routes in a directory server database:

1 From the directory provisioning page, as shown in Figure 24, click *Server Configuration*.

The *Directory Server Configuration* page appears. See Figure 51.

Figure 51   Directory Server Configuration Window
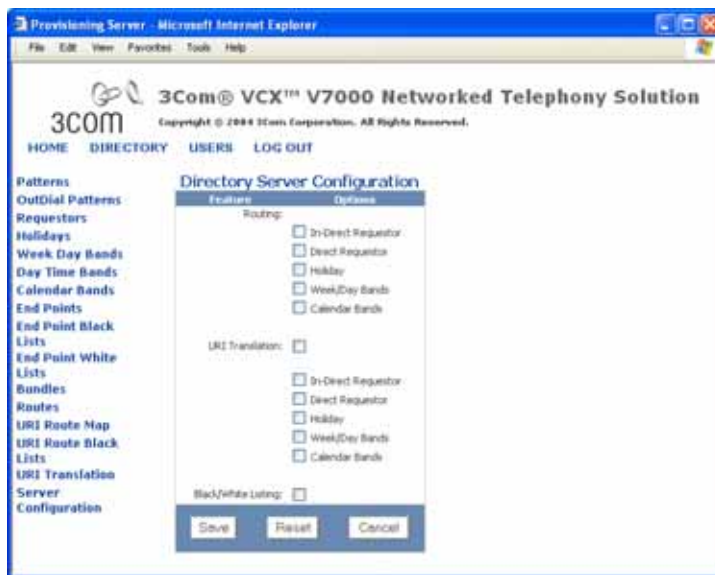
2 From the *Directory Server Configuration* page, under the *Routing* feature, click every sourced based routing option that needs to be enabled globally for the routes. Each of these options are explained in further detail in the "Managing URI Route Maps" section on page 127.

   a To enable In-Direct Requestors, check the *In-Direct Requestor* box. In-Direct Requestors are provisioned in the "Managing Requestors"

section on page 94, and are usually Tier 1 components such as a Gateway.

b To enable Direct Requestors, check the *Direct Requestors* box. Direct Requestors are provisioned in the "Managing Requestors" section on page 94, and are usually Tier 2 components such as a Gatekeeper or SIP Proxy.

c To enable Holidays, check the *Holiday* box. Holidays are provisioned in the "Managing Holidays" section on page 97.

d To enable Week Day Bands and/or Day Time Bands check the *Week/Day Bands* box. Week Day Bands and/or Day Time Bands are provisioned in the "Managing Week Day Bands" section on page 99 and "Managing Day Time Bands" section on page 102.

e To enable Calendar Bands, check the *Calendar Bands* box. Calendar Bands are provisioned in the "Managing Calendar Bands" section on page 105.

3 URI Translation is an optional feature. To enable URI Translation, check the *URI Translation* boxed. For more information on URI Translation, see the "Managing URI Translation" on page 134. See step 1 for more information on the sourced based routing options.

4 To enable routes to globally use the same black lists and/or white lists, check the *Black/White Listing* box. Black lists and white lists are provisioned in the "Managing End Point Black Lists" section on page 114 and "Managing End Point White Lists" section on page 116.

5 Click *Save*.

Resetting Globally Provisioned Routes   To reset globally provisioned routes in a directory server database:

1 From the directory provisioning page, as shown in Figure 24, click *Server Configuration*.

The *Directory Server Configuration* page appears.

2 Click *Reset*. This disables all global features and options.

3 To create a new global configuration, see step 2 through step 5 in the "Globally Configuring Routes" section on page 138.

3

CONFIGURING THE ACCOUNTING SERVER

The accounting server sends call detail records (CDRs) to the billing support server (if a billing support server exists in the system), exports CDRs into flat files or directly info the RT_CDR table, and deletes individual CDRs after a configurable period. You can also schedule jobs to export and delete CDRs.

Database Identification Configuration

Use either the acctconfig.xml file or Enterprise Management Suite to edit basic information for database identification.

Changing the Database Name

Change the database name for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Enterprise Management Suite

To change the database name for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *Database Configuration* tab.

3 In the *Name* column, double-click the associated field and enter the new database name.

For example, cwbes.

4 Click *Save all*.

Changing the Database Server Name

Change the database server name for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Enterprise Management Suite

To change the database server name for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *Database Configuration* tab.

3 In the *ServerName* column, double-click the associated field and enter the new database server name.

For example, cwbes.

4 Click *Save all*.

Changing the Database User Name

Change the database user name for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Enterprise Management Suite

To change the database user name for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *Database Configuration* tab.

3 In the *UserName* column, double-click the associated field and enter the new database user name.

For example, cwacct.

4 Click *Save all*.

Changing the Database User Password

Change the database user password for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Enterprise Management Suite

To change the database user name for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *Database Configuration* tab.

3 In the *UserPasswd* column, double-click the associated field and enter the new database user password.

For example, besgroup.

4 Click *Save all*.

Configuring the Database Keep Alive Timeout

Configure the database keep alive timeout setting for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Enterprise Management Suite

To configure the database keep alive timeout setting for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *Database Configuration* tab.

3 In the *KeepAlive* column, double-click the associated field and enter the new keep alive timeout.

The default setting is 20000. The range is 20000 through 1000000.

4 Click *Save all*.

Configuring the Client Activity Interval

Configure the client activity interval for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Server Configuration File

To configure the client activity interval using the acctconfig.xml file:

1 Log in as *root*.

2 Stop the accounting server.

3 Go to the */opt/3com/VCX/acct/conf* directory.

4 Edit the *acctconfig.xml* file for the accounting server.

For example:

```
<!-- Client activity interval-->^M
<!-- in millisecond -->^M
<CLIENT_ACTIVITY_INTERVAL VALUE="200000"/>
```

5 Log in as *cworks*.

su - cworks

6 Start the accounting server.

Enterprise Management Suite   To configure the client activity interval for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *BES Common Configuration* tab.

3 Double-click the *ClientActivityInterval* field and enter the client activity interval in milliseconds.

   The default setting is 200000. The range is 2000 through 200000.

4 Click *Save all*.

Configuring Client Request Threads   Configure client request threads for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Server Configuration File   To configure client request threads using the acctconfig.xml file:

1 Log in as *root*.

2 Stop the accounting server.

3 Go to the */opt/3com/VCX/acct/conf* directory.

4 Edit the *acctconfig.xml* file for the accounting server.

   For example:

```
<!-- For Performance Number of threads-->^M
<!-- to Process Message -->^M
<APPLICATION_THREAD VALUE = "20"/>
<!-- for the stress test set it-->^M
<!-- to 20 threads-->
```

5 Log in as *cworks*.

   su - cworks

6 Start the accounting server.

Enterprise Management Suite   To configure client request threads for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *BES Common Configuration* tab.

3 Double-click the *ClientReqThreads* field and enter the client request threads.

The range is 1 through 255.

4 Click *Save all*.

Configuring the Logging Level

Configure the logging level for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Server Configuration File

To configure the logging level using the acctconfig.xml file:

1 Log in as *root*.

2 Stop the accounting server.

3 Go to the */opt/3com/VCX/acct/conf* directory.

4 Edit the *acctconfig.xml* file for the accounting server.

For example:

```
<!-- set the Log Level through SNMP Interface -->^M
<!-- LOG_TRACE = 1, LOG_INFOR = 2, LOG_ERROR = 4-->^M
<!-- LOG_WARN  = 8, LOG_SYS  = 16 and 255 = ALL -->^M
<LOG_LEVEL VALUE="0"/>
```

5 Log in as *cworks*.

su - cworks

6 Start the accounting server.

Enterprise Management Suite

To configure the logging level for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *BES Common Configuration* tab.

3 Double-click the *LogLevel* field and enter the logging level.

The default setting is 0. The range is 1 through 255.

4 Click *Save all*.

Enabling Packet Tracing	Enable packet tracing for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

Server Configuration File

To enable packet tracing using the acctconfig.xml file:

1 Log in as *root*.

2 Stop the accounting server.

3 Go to the */opt/3com/VCX/acct/conf* directory.

4 Edit the *acctconfig.xml* file for the accounting server.

For example:

```
<!-- ASN Packet Tracing for 3Queue-->^M
<!-- Messages,output to console 0=OFF,1=ON -->^M
<PACKET_TRACING VALUE = "0"/>
```

5 Log in as *cworks*.

```
su - cworks
```

6 Start the accounting server.

Enterprise Management Suite

To enable packet tracing for the accounting server using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *BES Common Configuration* tab.

3 Double-click the *PacketTracing* field and select *enable* from the drop-down list.

4 Click *Save all*.

Creating Backup Configuration Files	Enterprise Management Suite allows you to save the configurations for the accounting server and create CFM backup configuration files. Use configuration file manager (CFM) backup configuration files to restore the accounting server to a previous set of configurations.

CFM files store data in a defined format that can be altered.

Creating a CFM Backup File	You can save the Linux Server configuration to a CFM file. After you have saved the configuration, you can set the CFM file as a baseline so that you can restore it later.

To save the Linux Server configuration:

1 From the *Explorer* tab, right-click the 3Com VCX IP Telephony Server.

2 From the pop-up menu, select *Configuration* and then select *Backup*.

A dialog box appears and displays the progress of the save. When the save is finished, the *Working* icon changes to a *Finished* icon.

3 Click *Close*.

This file becomes the current, or most recently saved or restored, version. You can set the current version as the baseline version.

Setting the Current Configuration as Baseline	To set the current, or most recently saved or restored, configuration as the baseline version:

1 From the *Explorer* tab, right-click the 3Com VCX IP Telephony Server.

2 From the pop-up menu, select *Configuration* and then select *Set baseline to current*.

A dialog box appears and displays the progress of the command. When the command has completed, the *Working* icon changes to a *Finished* icon.

3 Click *Close*.

This file becomes the baseline version.

> *To restore the* Linux *Server configuration, refer to Restoring Backup Configuration Files.*

Restoring Backup Configuration Files

You can restore the 3Com VCX IP Telephony Server configuration from the last backup (current), the baseline, or the planned CFM file.

To restore the 3Com VCX IP Telephony Server configuration:

1 From the *Explorer* tab, right-click the 3Com VCX IP Telephony Server.

2 Select the configuration file you want to restore (baseline, current, or planned).

3 From the pop-up menu, select *Configuration* and then select one of the following:

a To restore the configuration to the last saved configuration, select *Restore current*.

b To restore the configuration to the saved baseline configuration (refer to "Setting the Current Configuration as Baseline"), select *Restore baseline*.

c To restore the configuration to the planned configuration, first select the CFM file (refer to "Selecting the Planned CFM File"), and then select *Restore planned*.

A dialog box appears and displays the progress of the restore command. When the configuration is restored, the *Working* icon changes to a *Finished* icon.

4 Click *Close*.

Selecting the Planned CFM File

After you save the accounting server configuration to a CFM file, select the configuration file as the planned configuration. The planned configuration is not restored until you execute the *CFM Restore Planned* command. Refer to Restoring Backup Configuration Files.

To select the planned CFM file:

1 From the *Explorer* tab, select the 3Com VCX IP Telephony Server.

2 From the *Properties* tab, select the *Configuration* tab.

3 Double-click the *Planned* drop-down list and select the desired CFM file.

4 Click *Save all*.

SNMP Support The SNMP Common Agent needs to be enabled in order for the accounting server to be recognized by SNMP MIB browsers such as Enterprise Management Suite (EMS).

Enabling SNMP Support To enable SNMP support on the accounting server:

1 Log in as *root*.

2 Stop the *common agent*.

3 Stop the *accounting server*.

4 Go to the */opt/3com/VCX/acct/conf* directory.

5 Open the *acctconfig.xml* file.

6 Under the *SNMP Configuration* tag, edit the *acctconfig.xml* file so the SNMP Common Agent is enabled.

For example:

```
<!-- Enable or Disable SNMP Common Agent-->
<!-- Interface, 0 = OFF, 1 = ON  -->
<ENABLED VALUE = "1"/>
```

7 Start the *common agent*.

8 Log in as *cworks*.

9 Start the accounting server.

> *If using EMS, rediscover the* Linux *Server before viewing/managing any of the settings on the accounting server.*

3Queue Protocol Support The accounting server supports 3Queue (3Q), a 3Com proprietary protocol.

Enabling and Disabling 3Q Enable 3Q using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

To enable and disable the 3Q protocol using EMS:

1 From the *Explorer* tab, select the accounting server.

2 From the *Properties* tab, select the *3 Q Protocol Configuration* tab.

3 Double-click the *3Qenables* field and select either *enable* or *disable* from the drop-down list.

4 If you enabled 3Q, double-click the *ClientThread* field and enter the number of threads to receive data.

5 Click *Save all*.

4

CONFIGURING THE CALL PROCESSOR

The VCX V7210 Call Processor is an application that provides call routing as well as other call services for the VCX V7000 IP Telephony Solution.

> *The Call Processor XML file (nmdb.xml) should not be modified manually since the Call Processor writes freely to the file at run-time and requires the Call Processor to be stopped in order to be edited. Use either CLI commands or the Enterprise Management Suite to configure the Call Processor instead.*

Call Processor Overview

The Call Processor handles both call processing and call routing and acts as a SIP back-to-back user agent. This means that the Call Processor actually serves as one active end point for each signaling leg of a call.

Call Processor Advantages

The Call Processor advantages are:

- Uses stateful routing — maintains information about a user's session.
- Designed for memory and performance utilization — recycles its own memory and keeps track of that memory so that any problems can be identified and fixed quickly.
- Built-in diagnostics — Can be accessed through the CLI to troubleshoot the system.
- Writes one CDR — The Call Processor writes only one CDR per call containing all information for that call, which makes the system more efficient.

Configuration Methods	There are two recommended means of configuring the Call Processor. This section provides a simple overview of each method, which are listed in order of usability (easiest listed first).

- Through the Enterprise Management Suite (EMS)
- Through the Command Line Interface

Through EMS	EMS is an optional management tool that offers a simple method to configure the call processor. EMS uses an SNMP interface that allows for easy viewing and management of all of the call processor configurables. See the *3Com Enterprise Management Suite User Guide* for basic EMS information.

Through CLI	The call processor can be configured from the server where the call processor was installed by using the remoteCLI application. See the "Call Processor Command Line Interface Commands" on page 221.

Configuring Call Control	This section provides information on how to configure the Call Control Plugin (CcCfg).

Through EMS	To configure the Call Control Plugin using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Configuration*.

4 Double-click any of the fields under the *3COM Sip Call Processor* column and configure according to the descriptions within Table 27.

Table 27   EMS Call Controller Call Control Configurable Descriptions

Attribute	Description	Range	Default
AnonymousCallerString	This configurable determines what value the Call Processor will expect in the from field of an incoming SIP INVITE to indicate that the caller is supressing their caller Id. This is one of the ways in which the Call Processor determines that an incoming caller id is suppressed.	any string	anonymous

(continued)

Table 27   EMS Call Controller Call Control Configurable Descriptions

Attribute	Description	Range	Default
AuthDomainString	This configurable determines what value the Call Processor will send in the "domain" parameter of the authentication challenge to SIP Endpoints.	any string	3Com
AuthRealmString	This configurable determines what value the Call Processor will send in the "realm" parameter of the authentication challenge to SIP Endpoints.	any string	3Com
ChallengeAllCalls	This configurable tells the Call Processor to challenge all incoming new call INVITE requests for authentication. In installations where security is a high priority, this configurable should be set to "true".	true false	false
RingTimeout	This configurable provides a value for default ring no answer treatment for all calls. For any given call, if the called party is not a user on the system (or is a user on the system with no ring no answer timeout value provisioned), the Call Processor will use this value to determine how long to wait for a call to connect after receiving a ringback indication. If the amount of time configured here elapses without the call being answered, the Call Processor will disconnect the calling party and cancel the call to the called party.	60 through 3600 (seconds)	300
SignallingAddress	This configurable tells the Call Processor what IP interface to listen on for SIP messaging. The Call Processor uses this address to send SIP requests and responses.	dotted IP string NOTE: maximum 15 characters	0.0.0.0 NOTE: must be configured
SignallingPort	This configurable tells the Call Processor what IP port to listen on for SIP messaging. The Call Processor will also use this port to send SIP requests and responses.	0 through 65535	5060

5 Click *Save All*.

Configuring Trusted Endpoints

This section provides information on how to add, edit, and delete trusted endpoints for a Call Processor. Trusted endpoint do not need to have a port specified. An IP address, if present in the trusted endpoint list, is trusted independently of the port.

Adding Trusted Endpoints

This section describes how to add trusted endpoints to a Call Processor.

Through the CLI

To add a trusted endpoint to a Call Processor using the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

```
./remoteCli -callprocessor
```

4 Add either a single or range of trusted endpoints:

a To add a single trusted endpoint, from the prompt (>) enter:

```
config CcTrusted rowStatus=4 index=<index ID>
TrustedAddress=<IP address of endpoint>
```

b To add a range of trusted endpoints using abbreviated variables, from the prompt (>) enter:

```
config cct row=4 index=<index ID> trustedaddr=<IP address
of endpoint> netmask=<IP address of netmask>
```

See Table 28 for descriptions and values of the configurables.

Table 28   CcTrusted Configurable Descriptions

Column Name	Description	When Takes Effect	Range	Default
rowStatus	This determines what sort of configuration you want to do with a trusted endpoint such as delete or add one. In order to configure a row you always need to specify the index.	Once Call Processor restarted.	1 = active 2 = not in service 3 = not ready 4 = add 5 = create and wait 6 = delete	1
index	This is the trusted endpoint table's key and is a unique identifier of a row.	Once Call Processor restarted.	1 through 128	1
TrustedAddress	Indicates an endpoint to trust. Each row is for an IP address and port combination. By default, if only the IP address is supplied, the default SIP IP Port 5060 is assumed. To specify the port, simply append a colon (:) to the IP address and add the port number.	Once Call Processor restarted.	**For IP Address:** dotted IP string NOTE: maximum 15 characters. **For Port Number:** 0 through 65535	**For IP Address:** 0.0.0.0 NOTE: must be configured. **For Port Number:** 5060
netmask	Used when you would like to add a range of trusted endpoints.	Once Call Processor restarted.	dotted IP string NOTE: maximum 15 characters.	0.0.0.0

5 To exit the Remote CLI application, enter:

exit

Through EMS

To add a trusted endpoint to a Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Trusted Endpoints*.

4 Click *Add*.

The *Add row to table* window appears.

5 From the *Index* field, specify the index of the trusted endpoint.

6 From the *IpAddress* field, enter an IP address that you want to make a trusted endpoint.

7 To specify a range of trusted endpoints use the *Netmask* field, otherwise, leave it blank. From the *Netmask* field, enter an IP address for a range of trusted endpoints.

8 Click *OK*.

9 The IP Address is added and is listed in the *IpAddress* column of EMS.

Editing Trusted Endpoints   This section describes how to edit trusted endpoints of a Call Processor.

Through the CLI

To edit a trusted endpoint of a Call Processor using the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

./remoteCli -callprocessor

4 From the prompt (>) enter:

*config CcTrusted RowStatus=<RowStatus variable> index=<index
ID> TrustedAddress=<IP address of endpoint>*

See Table 28 for descriptions and values of the configurables.

5 To exit the Remote CLI application, enter:

exit

Through EMS

To edit a trusted endpoint to a Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Trusted Endpoints*.

4 Double-click the field (s) you want to edit under the *IpAddress* column.

5 High-light what you want to edit.

6 Type in the new information.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new information is added and is listed in the *IpAddress* column of EMS.

Deleting Trusted Endpoints   This section describes how to delete trusted endpoints from a Call Processor.

Through the CLI

To delete a trusted endpoint from the Call Processor using the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

```
./remoteCli -callprocessor
```

4 From the prompt (>) enter:

```
config CcTrusted RowStatus=6 index=<index ID>
TrustedAddress=<IP address of endpoint>
```

See Table 28 for descriptions and values of the configurables.

5 To exit the Remote CLI application, enter:

```
exit
```

Through EMS

To delete a trusted endpoint to the Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Trusted Endpoints*.

4 From the *IpAddress* column, click the IP Address field you want to delete.

5 Click *Delete*.

The trusted endpoint is removed from the call processor.

Verifying Call Processor Version

To verify what the Call Processor version is.

Through the Command Prompt

To verify the Call Processor version from a command prompt:

1 Log onto the server hosting the Call Processor as root.

2 Navigate to the */opt/3com/VCX/callprocessor/bin*.

3 View the *buildversion.h* file.

Through EMS

To verify what the Call Processor version is using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Identification*.

4 From the *Version* field, the Call Processor version is listed.

Configuring the Back-end Server Plugins

This section provides information on how to add and delete accounting, authentication, and directory servers.

Adding Primary and Secondary Accounting Servers

Accounting servers can be added using either EMS or through the Remote CLI Application.

Through EMS

To add an accounting server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Accounting Servers*.

4 Click *Add*.

The *Add row to table* window appears.

5 Fill in the fields according to the descriptions in Table 29.

Table 29   Accounting Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the accounting server.	Integer: 1 - 5 1 = primary) 2 = secondary
AcctServerIpAddress	Specifies the IP Address of the accounting server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)
LocalIpAddress	Specifies the Local IP Address for the accounting server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6 Click *OK*.

7 The accounting server is added to the *Accounting Server* tab.

Through the CLI

To add a primary accounting server through the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

4 From the prompt (>) enter:

config acctc use=false

config accts pri=1 IpAddress=<IP address of primary accounting server>

config accts pri=1 LocalIpAddress=<IP address of call processor>

config acctc use=true

5 The CLI lists the new IP address of the accounting server.

6 Exit the Remote CLI application.

To add a secondary accounting server through the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

4 From the prompt (>) enter:

```
config acctc use=false
```

`config accts pri=2 IpAddress=`<IP address of secondary accounting server>

`config accts pri=2 LocalIpAddress=`<IP address of call processor>

```
config acctc use=true
```

5 The CLI lists the new IP address of the accounting server.

6 Exit the Remote CLI application.

Editing Accounting Server IP Addresses

To edit an accounting server IP address for the Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Accounting Servers*.

4 Double-click the IP Address under the *AcctServerIpAddress* column you want to edit.

5 High-light what you want to edit.

6 Type in the new IP address.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new IP Address is added and is listed in the *AcctServerIpAddress* column of EMS.

Removing Accounting Servers

To remove an accounting server from the call processor:

Through EMS

To remove an accounting server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Accounting Servers*.

4 Put cursor in the row of the accounting server you want to delete.

5 Click *Delete*.

The accounting server is removed from the VCX IP Telephony Server.

Adding Primary and Secondary Authentication Servers

Authentication servers can be added using either EMS or through the Remote CLI Application.

Through EMS

To add an authentication server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Authentication Servers*.

4 Click *Add*.

The *Add row to table* window appears.

5 Fill in the fields according to the descriptions in Table 29.

Table 30   Authentication Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the authentication server.	Integer: 1 - 5 1 = primary) 2 = secondary
AuthServerIpAddress	Specifies the IP Address of the authentication server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)
LocalIpAddress	Specifies the Local IP Address for the authentication server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6 Click *OK*.

The authentication server is added to the *Authentication Server* tab.

Through the CLI

To add a primary authentication server through the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

4 From the prompt (>) enter:

config authc use=false

config auths pri=1 IpAddress=<IP address of primary authentication server>

config auths pri=1 LocalIpAddress=<IP address of call processor>

```
config authc use=true
```

5 The CLI lists the new IP address of the authentication server.

6 Exit the Remote CLI application.

To add a secondary authentication server through the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

4 From the prompt (>) enter:

```
config authc use=false
```

config auths pri=2 IpAddress=<IP address of secondary authentication server>

config auths pri=2 LocalIpAddress=<IP address of call processor>

```
config authc use=true
```

5 The CLI lists the new IP address of the authentication server.

6 Exit the Remote CLI application.

Editing Authentication Server IP Addresses   To edit an authentication server IP address for the Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Authentication Servers*.

4 Double-click the IP Address under the *AuthServerIpAddress* column you want to edit.

5 High-light what you want to edit.

6 Type in the new IP address.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new IP Address is added to the nmdb.xml file and is listed in the *AuthServerIpAddress* column of EMS.

Removing Authentication Servers

To remove an authentication server from the call processor:

Through EMS

To remove an authentication server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Authentication Servers*.

4 Put cursor in the row of the authentication server you want to delete.

5 Click *Delete*.

The authentication server is removed from the VCX IP Telephony Server.

Adding Primary and Secondary Directory Servers

Directory servers can be added using either EMS or through the Remote CLI Application.

Through EMS

To add an directory server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Directory Servers*.

4 Click *Add*.

The *Add row to table* window appears.

5 Fill in the fields according to the descriptions in Table 31.

Table 31   Directory Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the directory server.	Integer: 1 - 5 1 = primary) 2 = secondary
DirServerIpAddress	Specifies the IP Address of the directory server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)
LocalIpAddress	Specifies the Local IP Address for the directory server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6 Click *OK*.

7 The directory server is added to the *Directory Server* tab.

Through the CLI

To add a primary directory server through the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

4 From the prompt (>) enter:

config dirc use=false

config dirs pri=1 IpAddress=<IP address of primary directory server>

config dirs pri=1 LocalIpAddress=<IP address of call processor>

config dirc use=true

5 The CLI lists the new IP address of the directory server.

6 Exit the Remote CLI application.

To add a secondary authentication server through the CLI:

1 Log onto the server hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/remoteCli/bin*.

3 Start the Remote CLI application.

4 From the prompt (>) enter:

config dirc use=false

config dirs pri=2 IpAddress=<IP address of secondary directory server>

config dirs pri=2 LocalIpAddress=<IP address of call processor>

config dirc use=true

5 The CLI lists the new IP address of the directory server.

6 Exit the Remote CLI application.

Editing Directory Server IP Addresses   To edit a directory server IP address for the Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Directory Servers*.

4 Double-click the IP Address under the *DirServerIpAddress* column you want to edit.

5 High-light what you want to edit.

6 Type in the new IP address.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new IP Address is added to the nmdb.xml file and is listed in the *DirServerIpAddress* column of EMS.

Removing Directory Servers

To remove a directory server from the call processor:

Through EMS

To remove an directory server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*

3 From the *Properties* tab, click *Directory Servers*.

4 Put cursor in the row of the directory server you want to delete.

5 Click *Delete*.

The directory server is removed from the VCX IP Telephony Server.

Enabling or Disabling Accounting Server

To enable or disable an accounting server:

Through EMS

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*

3 From the *Properties* tab, click *Accounting Server Configuration*

4 From the *UseAccountingServerAdmin* row, double-click the field in the same row under the *3COM Sip Call Processor* column.

   ■ To enable, change to *true*.

   ■ To disable, change to *false*.

5 Click *Save All*.

Enabling or Disabling Authentication Server	To enable or disable an authentication server:

Through EMS

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*

3 From the *Properties* tab, click *Authentication Server Configuration.*

4 From the *UseAutheticationServerAdmin* row, double-click the field in the same row under the *3COM Sip Call Processor* column.

- To enable, change to *true*.

- To disable, change to *false*.

5 Click *Save All*.

Enabling or Disabling Directory Server	To enable or disable a directory server:

Through EMS

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*

3 From the *Properties* tab, click *Directory Server Configuration.*

4 From the *UseDirectoryServerAdmin* row, double-click the field in the same row under the *3COM Sip Call Processor* column.

- To enable, change to *true*.

- To disable, change to *false*.

5 Click *Save All*.

Monitoring Call Statistics	You can verify the number of active calls, attempted calls, successfully connected calls, and unsuccessful calls using EMS. To monitor call statistics for the call processor:

Through EMS

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*

3 From the *Properties* tab, click *Call Statistics.*

4 For description of each field, see Table 32.

Table 32   Call Statistics Field Attribute Descriptions

Attribute	Description
CurrentActiveCalls	This number defines the total number of calls that are in process of being connected, are already connected, or are in process of being disconnected.
TotalAttemptCalls	This number defines the total number of origination call attempts that were handled by the call processor.
TotalSuccessfulCalls	This number defines the total number of calls that were successfully connected through this call processor.
TotalUnsuccessfulCalls	This number defines the total number of calls that were dropped by this call processor or rejected by this call processor or calls that could not be connected.

5

CONFIGURING TELEPHONES

Configuring 3Com Telephones

There are multiple steps that need to be completed in order for a 3Com telephone to work within a VCX system.

1 Configure the telephone through the administration provisioning server.

   a Configure a new user. See "Adding End Users" on page 21.

   b Configure a phone extension to be associated with the new user. See "Adding Phones" on page 27.

   c Configure any phones restrictions that need to be added for the new user. See "Adding Phone Restrictions" on page 37.

   d Create a phone registration for the user that you just added. See "Adding Phone Registrations" on page 40.

2 Configure the physical 3Com telephone so it can be recognized within a VCX system.

See the Installation Guide for more information on how to install and initially configure any supported 3Com telephones.

3Com Telephone Local User Interface Menus

The firmware within each 3Com telephone includes a telephone diagnostic and configuration utility called the Local User Interface (LUI). The administrator has access to more telephone configurables through LUI, which are needed for initial physical telephone configuration and to test the telephone.

The LUI utility enables you to perform these tasks:

■ View telephone settings, both the active settings and the settings stored in the telephone's memory

■ Set telephone IP address, subnet mask, and default gateway

■ Specify IP address of the Network Call Processor (NCP)

■ Specify settings specific to a 3Com VCX Telephone System

- Test the telephone buttons, display panel, and LEDs
- Clear all device settings
- Specify the MAC address of the NCP (test environment option)
- View firmware information (technician option)
- Test connectivity
- Restart the telephone

Assessing the Telephone LUI Menus

To access the LUI menu:

1 Cycle power to the telephone by disconnecting and then reconnecting its power connector, and then start the LUI utility (as described in step 2, next) before the telephone finishes its download of code from the call processor.

   For telephones that use a powered Ethernet cable instead of a power adapter, disconnect and then reconnect the Ethernet cable.

2 To start (or exit from) the LUI utility:

   - On the 3Com 3102 Business Telephone, press the *Program* button:

   - On 3Com 2102 and 2102-IR Business Telephones, press the *Program* button:

   - On 3Com 3101 or 3101SP Basic Telephones, press the *Select* button (the center button in the cursor control button group):

   - On the 3Com 2101 Basic Telephone, press the MSG button:

   The buttons you use to enter information vary with each type of supported telephone:

   - 3Com 3102 Business Telephone, see Figure 52 on page 169.
   - 3Com 3101 or 3101SP Basic Telephones, see Figure 53 on page 170.
   - 3Com 2102 and 2102-IR Business Telephones, see Figure 54 on page 171.

■ 3Com 2101 Basic Telephone, see Figure 55 on page 172.

Table 33 on page 173 describes each LUI utility menu item.

Figure 52 Local User Interface Controls on the 3Com 3102 Business Telephone
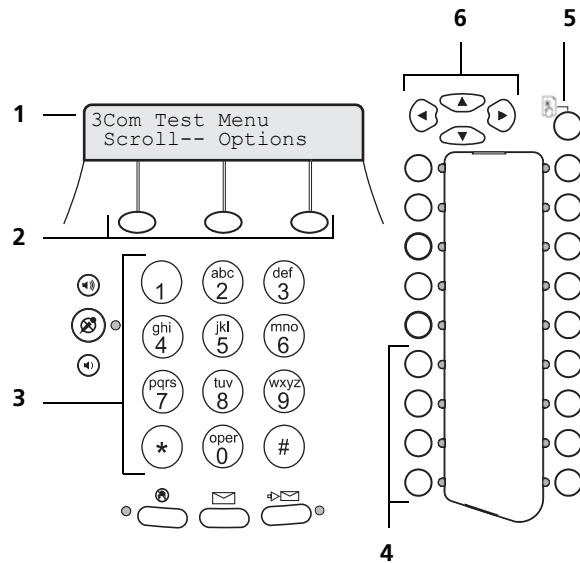
1 Display panel.

2 Soft buttons move the cursor left or right. The middle button is not used.

3 Key pad numeric keys select menu items or enter numeric characters in a menu item. Use the # key to save changes after you edit an item.

4 Access buttons AB1-AB4 (from bottom to top) select menu items.

5 Program button:

■ Start and exit from the LUI utility.

■ Exit from a menu item and move to the next higher menu. If you press the Program button before you save a change to a setting, you exit the menu item without saving the change.

6 Scroll buttons:

■ Up and down buttons move up or down through the LUI menu and select hex digits when editing a MAC address.

■ Left and right buttons position the cursor in the display panel when editing a setting, such as an IP address.

Figure 53 Local User Interface Controls on 3Com 3101 and 3101SP Basic Telephones
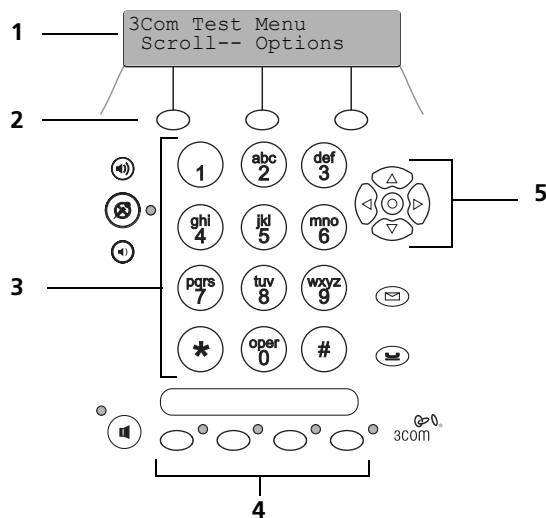
1 Display panel.

2 Soft buttons move the cursor left or right. The middle button is not used.

3 Key pad numeric keys select menu items or enter numeric characters in a menu item. Use the # key to save changes after you edit an item.

4 Access buttons AB1-AB4 (from left to right) select LUI menu items.

5 Scroll buttons:

■ Center select button starts and exits from the LUI utility or exits from a menu item and moves to the next higher menu. If you press the center select button before you save a change to a setting, you exit the menu item without saving the change.

■ Up and down buttons move up or down through the LUI menu and select hex digits when editing a MAC address.

■ Left and right buttons position the cursor in the display panel when editing a setting, such as an IP address.

Figure 54 Local User Interface Controls on the 3Com 2102 and 2102-IR Business Telephones
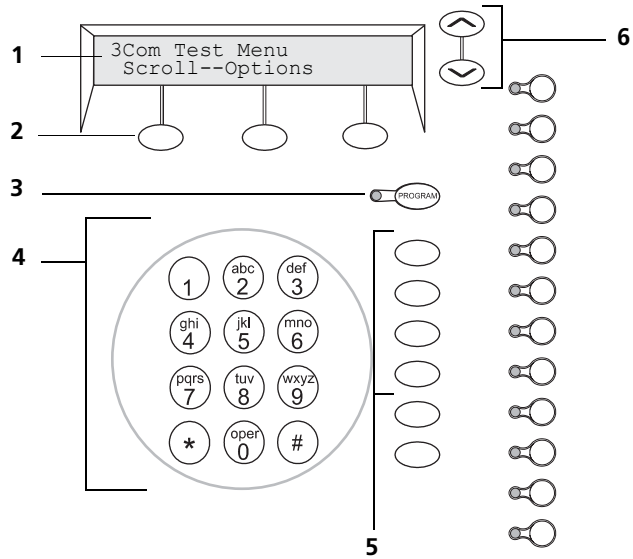
1 Display panel.

2 Soft buttons move the cursor left or right. The middle button is not used.

3 Program button starts and exits from the LUI utility or exits from a menu item and moves to the next higher menu. If you press the Program button before you save a change to a setting, you exit the menu item without saving the change.

4 Key pad numeric keys select menu items or enter numeric characters in a menu item. Use the # key to save changes after you edit an item.

5 Access buttons AB1-AB4 (from top to bottom) select LUI menu items.

6 Scroll buttons move up or down through the LUI menu and select hex digits when editing a MAC address.

Figure 55 Local User Interface Controls on the 3Com 2101 Basic Telephone
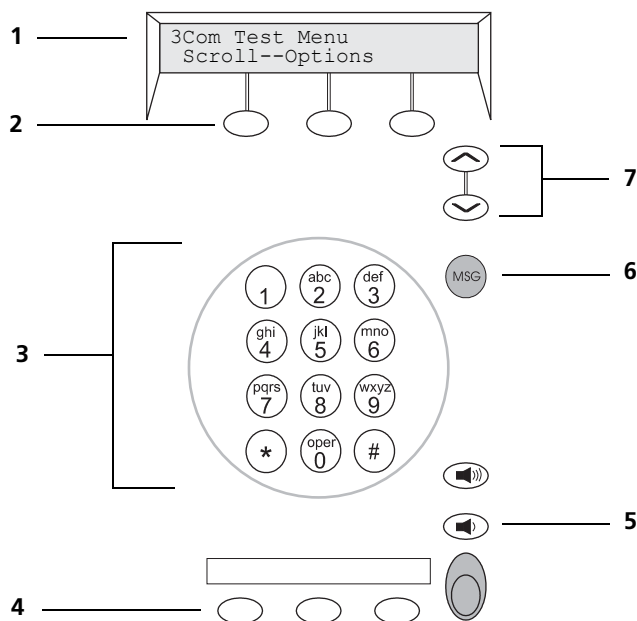
1 Display panel.

2 Soft buttons move the cursor left or right. The middle button is not used.

3 Key pad numeric keys select menu items or enter numeric characters in a menu item. Use the # key to save changes after you edit an item.

4 Access buttons AB1-AB3 select LUI menu items.

5 Volume Down button selects LUI menu item AB4.

6 MSG (voice mail message) button starts and exits from the LUI utility or exits from a menu item and moves to the next higher menu. If you press the MSG button before you save a change to a setting, you exit the menu item without saving the change.

7 Scroll buttons move up or down through the LUI menu and select hex digits when editing a MAC address.

Table 33 LUI Menu Items

Menu Option	Description
1 View Settings	Press 1 on the number pad and scroll to view these options:
	MAC Address – MAC address of this telephone.
	NCP MAC Address – MAC address of call processor. All Fs, the normal value for this setting, indicates that the telephone responds to any NCP.
	SW Build Ident. – Software version running on this telephone.
	Serial # Rev – Telephone serial number and hardware version.
	Phone Port Speed – Speed and duplex setting of the LAN connection.
	PC Port Speed – The speed and duplex setting of the PC port to the device, if any, connected to the port.
	Note: The next four settings are all valid only if the device downloads via IP (layer 3). These four settings are acquired from either DHCP or a setting in the telephone's memory
	My IP Address – Active IP address of this telephone.
	Subnet Mask – Active IP mask.
	Gatwy IP Address – Active default gateway IP address.
	NCP IP Address – Active IP address of the call processor with which this telephone communicates.
	ALT SrvrIP – Active IP address of a secondary download server with which this telephone communicates, acquired from either DHCP option 184 or a setting in the telephone's memory. (Valid for 3Com VCX Telephone systems only.)
	VLAN Config – Active VLAN for this telephone, acquired from either DHCP option 184 or a setting in the telephone's memory.
	Mem- My IP Addr – The IP address configured in the telephone's memory though the LUI utility.
	Mem- Subnet Mask – The IP mask configured in the telephone's memory though the LUI utility.
	Mem- Gatwy IP – The default gateway IP address configured in the telephone's memory though the LUI utility.
	Mem- NCP IP Addr – The NCP IP address configured in the telephone's memory though the LUI utility.
	Mem- ALT SrvrIP – Secondary download server address configured in the telephone's memory.
	Mem- VLAN Config – VLAN values configured in telephone's memory.

(continued)

Table 33 LUI Menu Items (continued)

Menu Option	Description
2 Set my IP	Lets you specify the IP information for this telephone.
3 Set SubNMsk	When entering an IP address:
4 Set Gatwy IP	■ Use the key pad to enter digits 0–9.
	■ Use the left and right soft keys or scroll keys to move the cursor left or right.
	■ If any of the fields within the IP address contain only one or two digits, add leading zeros. Example: Enter 10.234.1.125 as 010.234.001.125
	■ To change a telephone back to its default setting, enter 255 for each octet of the IP address. To clear all configured settings and return to factory defaults, select menu item 0 (EEPROM-default).
	■ Press the # key to commit your address change.
5 Set NCP IP	Lets you specify the IP address of the Network Call Processor. If the telephone is on the same subnet as the NCP you never need to specify the NCP IP address. If the telephone is on a different subnet, then you must enter this information or provide it by using DHCP option 184.
	When entering an IP address:
	■ Use the key pad to enter digits 0–9.
	■ Use the left and right soft keys or scroll keys to move the cursor left or right.
	■ If any of the fields within the IP address contain only one or two digits, add leading zeros. Example: Enter 10.234.1.125 as 010.234.001.125
	■ To change a telephone back to its default setting, enter 255 for each octet of the IP address. To clear all configured settings and return to factory defaults, select menu item 0 (EEPROM-default).
	■ Press the # key to commit your address change.

(continued)

Table 33 LUI Menu Items (continued)

Menu Option	Description
6 VCX Config Menu	**Alt Dnld Servr** – The IP address of a secondary server that stores the telephone's image.
	Set VLAN Config – Used to enable or disable VLAN configuration.
	■ VLAN Enable – 1
	You are prompted to enter the VLAN ID. A valid VLAN ID is in the range of 0 through 4095. Press the pound key (#) to store it in memory.
	■ VLAN Disable - 0
7 Spare	Reserved for future use.
8 Test LED & LCD	Turns on all LEDs for 5 seconds, then fills every pixel on the display panel for 5 seconds.
9 Test – Buttons	Puts the telephone in the button test state. Press any telephone button to see a description of the button's function. To return to the main menu, you must press the menu button *twice*:
	■ On the 3Com 3102 Business Telephone:
	■ On an 3Com 2102 or 2102-IR Business Telephone*:*
	■ On an 3Com 3101 or 3101SP Basic Telephone:
	■ On an 3Com 2101 Basic Telephone:
0 EEPROM-Default	Restores the phone to default settings by clearing these configured settings:
	IP Information — My IP, Subnet Mask, Gateway IP, NCP-IP, and the Alt Download Server IP return to 255.255.255.255.
	NCP MAC address — The NCP MAC address returns to ff:ff:ff:ff:ff:ff.
	SIP Parameters — All SIP specific parameters will be set to default 0xffff (data parameters) or 255.255.255.255 for IP addresses.
	NOTE: If you select this option you are prompted to verify your action before the system clears the EEPROM.

(continued)

Table 33 LUI Menu Items (continued)

Menu Option	Description
AB1 Set NCP MAC	This option is not used in VCX networks.
AB2 Show EEProm	Lets you scroll through the locations in the memory of the telephone. The information is presented in hexadecimal format and can be properly interpreted only by a 3Com service person.
AB3 Ping H3/IP	This option has no purpose in a VCX system and therefore is not used.
AB4 Reset Phone	Reset the device. You can perform the same task by removing power from the telephone. However, Option AB4 can be useful for cordless phones, which cannot easily be disconnected from power.

Administration Telephone Feature Keys

This section outlines some of the feature button keys that are applicable for an administrator. The feature button enables you to access features that are not assigned to an access button.

To enable a feature, press the *Feature* button and then press the code on the telephone keypad. The location of the feature button is different for each telephone type and is outlined in the *V7000 Telephone Guide*.

Table 34 Telephone Administration Feature Keys

Feature Key Code	Description
Feature + 993	Resets telephone to default.
Feature + 994	Overrides Class of Service.
Feature + 995	Forces registration.
Feature + 996	Soft reset of the telephone.
Feature + 997	Hard reset of the telephone.

6

CONFIGURING THE COMPLEMENTARY ATTENDANT

The Complementary Attendant Software (CAS) is an application that is installed on a computer with a Windows 2000 or Windows XP O/S, which is used to manage an enterprise's telephone network. Attendants can monitor calls by seeing if they are busy, conference in callers, put calls on hold or park, dial callers, and transfer calls easily. Telephone extensions are organized in a table format with columns that can be sorted by extension, first and last name, or department. The CAS can either be associated with a physical telephone device or the attendant can use a headset and monitor through the computer to administrate calls.

> *For information on how to install and initially configure the CAS see the VCX V7000 IP Telephony Suite Installation Guide.*

Logging into the CAS

To log into the complementary attendant:

1 Login to the computer where the CAS is installed and initially configured.

2 From the *Start* menu, click *VCX CAS*. The installation default location is *Start | All Programs | 3Com | VCX CAS*.

The complementary attendant GUI appears. See Figure 56.

Figure 56 Complementary Attendant GUI
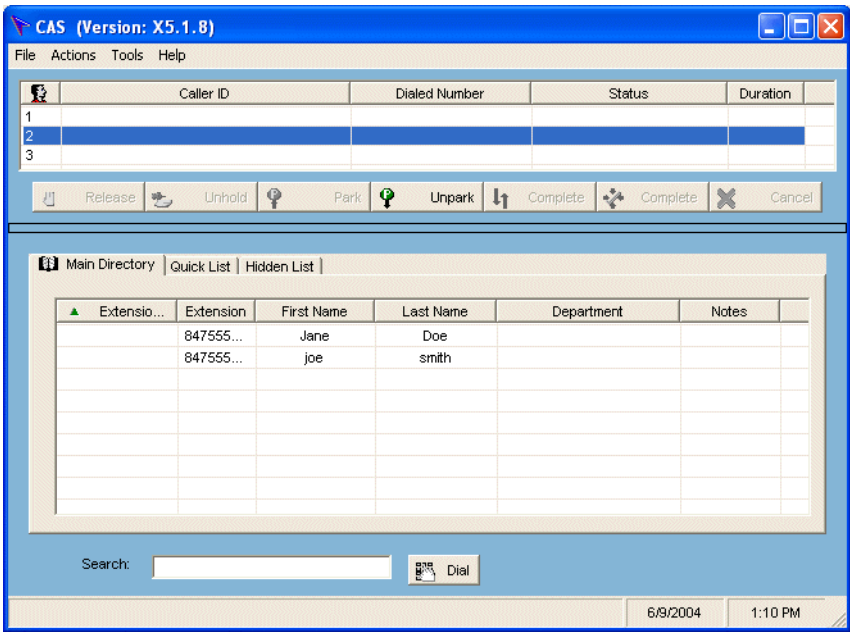
Updating Telephone Directory

The telephone extension directory shows all of the end users within the VCX system. Any end users and their associated telephone extensions that are configured in the Administration Interface of the provisioning server (the server the complementary attendant is associated with) is automatically updated when the complementary attendant is started.

To update the telephone directory with any user changes:

1 From the *CAS*, click *Tools* and then click *Update Directory*.

2 Click *OK*.

3 Restart the CAS by closing and then restarting.

Changing the Telephone Associated with the CAS	In order to change a complementary attendant telephone, it must already be configured in the authentication server. To add the telephone and associated user, see "Adding End Users" on page 21 and "Adding Phones" on page 27. This makes the telephone available when you want to associate the complementary attendant with a different telephone.

If you want to change the attendant console telephone associated with complementary attendant:

1 From the complementary attendant window, click *Tools* and then click *Application Settings*.

The *CAS Application Settings* window appears.

2 In the *Phone Settings* section of the *General* tab, from the *VCX Telephony Extension* drop-down, click the telephone extension associated with the new attendant telephone. It is listed if configured for the authentication server.

> **i** *If you do not see the telephone extension listed and it was recently added, try updating the telephone directory first. See "Updating Telephone Directory" on page 178.*

3 In the *Phone MAC* field, type in the MAC address of the new telephone you want to associate with the complementary attendant.

4 Click the *Server(s)* tab.

5 Fill in the fields according to the descriptions in Table 35.

Table 35   CAS Server(s) Tab Descriptions

Field	Description
Primary Proxy IP Address	IP address of the server where the primary call processor is located.
Secondary Proxy IP Address	IP address of the server where the secondary call processor is located.

(continued)

Table 35 CAS Server(s) Tab Descriptions (continued)

Field	Description
Dialing Domain	The IP address of the server where users are configured. In the administration provisioning server, users are created in two formats:
	1 By using only the call processor's IP address. For example, if the user is configured as *sip:8475551234@<IP address of call processor>*, the dialing domain is *<IP address of call processor>*.
	2 By using a virtual IP address. For example, if the user is configured as *sip:8475551234@10.10.10.10*, the dialing domain is 10.10.10.10. This configuration is specifically used for a redundant server.

6 Click *OK*.

7 Restart the CAS.

Uninstalling the CAS

To uninstall the CAS:

1 From the *Start* menu, click *Control Panel*.

The *Control Panel* window appears.

2 Click *Add or Remove Programs*.

The *Add or Remove Programs* window appears.

3 From the *Currently installed programs* column, select *VCX CAS*.

4 Click the *Change/Remove* button.

5 Click *OK*.

The program uninstalls. You should reboot your machine once the uninstallation occurs.

For additional information on using the Complement Attendant Software, see the Help system in the software.

7

CALL REPORTING

This chapter describes the Call Detail Records (CDRs), the fields contained in the CDRs, and how to configure the Call Report utility.

Call Detail Records Introduction

Call Detail Records (CDRs) contain a large amount of information about each call that is processed by the VCX V7000 IP Telephony Suite.

CDR Generating Components

CDR information can be generated by either a gateway, the Unified Messaging Suite, or the call processor, which generate and send the CDR information directly to the Accounting Server.

In general, the CDR generating component is responsible for deciding which CDR fields are appropriate for that particular type of component.

Typically, one CDR is generated by a component at the open (or start) of a call and another CDR is generated at the close (or end) of a call. Also, CDRs are generated by components on the ingress (incoming) and egress (outgoing) sides of a call.

The accounting server supports the 3Queue protocol for receiving CDRs. 3Queue is a high-performance, reliable, 3Com proprietary protocol which uses ASN.1 formatted UDP messages. The UDP messages are sent to and received from the back-end servers.

Logging into the Call Report Utility

To log into the Call Reports utility:

1 Login to the computer where the Call Report utility is installed and initially configured.

2 From the *Start* menu, click *VCX Call Reports*. The installation default location is *Start | All Programs | 3Com VCX | VCX Call Reports*.

The Call Report utility appears. See Figure 57.

Figure 57 Call Report Utility
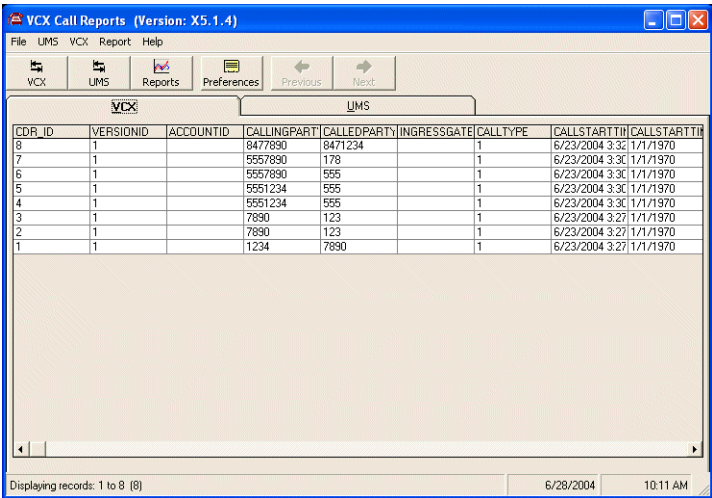
Updating the CDR Fields

CDRs can be downloaded from either the VCX or UMS applications within the V7000 IP Telephony Suite and can be retrieved either manually or automatically. For information on the V7300 CDRs, see the *V7350 UMS Operations and System Administration Guide*.

Retrieving VCX CDRs Manually

To update the CDR fields for a VCX system manually:

1 From the VCX Call Reports utility, click the *VCX* tab.

2 From the menu bar, click *VCX*.

3 Click *Retrieve Billing Records from System*.

4 Any new files are downloaded from the server and displayed in the VCX tab fields.

Retrieving VCX CDRs Automatically

To update the CDR fields for a VCX system automatically:

1 From the VCX Call Reports utility, click the *Preferences* button.

2 Click the *Retrieval* tab.

3 Check the checkbox preceding the *VCX: Automatically retrieve every* `<hour field>` *hours* field.

4 From the `<hour field>` field, type how often in hours you want the CDR fields to update.

5 Click *OK*.

The VCX CDRs will update automatically.

Changing the Servers Associated with the Call Report Utility

To change the server(s) associated with the Call Report utility:

1 From the VCX Call Reports utility, click the *Preferences* button.

2 Click the *Server* tab.

3 FIll in the fields are described in Table 36.

Table 36 Call Report Server Preferences Descriptions

Field Section	Field	Description
Network Addresses	VCX IP Address	IP address of the server where the call processor is located.
	UMS IP Address	IP address of the server where the UMS system is located.
	Use SFTP	Check the checkbox to enable SFTP.

Table 36   Call Report Server Preferences Descriptions (continued)

Field Section	Field	Description
VCX CDR Login	User Name	User name of the login for the VCX server hosting the billing support server. The default is *root*.
	Password	Password of the login for the VCX server hosting the billing support server. The default is *pvadmin*.
	Remote Directory	The location where the V7200 super CDR files are located. The default is */opt/3com/VCX/bss/db/export/*.
(continued)		
UMS Server Login	User Name	User name of the login for the UMS server. The default is *cworks*.
	Password	Password of the login for the UMS server. The default is *cworks*.
	Remote Directory	The location where the UMS system CDR files are located. The default is */usr/app/app.dir/vmcdr.dir/*.

4 Click *OK*.

Uninstalling the Call Report Utility

To uninstall the Call Report Utility:

1 From the *Start* menu, click *Control Panel*.

The *Control Panel* window appears.

2 Click *Add or Remove Programs*.

The *Add or Remove Programs* window appears.

3 From the *Currently installed programs* column, select *3Com VCX Call Reports*.

4 Click the *Change/Remove* button.

5 Click *OK*.

The program uninstalls. You should reboot your machine once the uninstallation occurs.

Supported VCX CDR Field Descriptions

This section contains information about each of the supported CDR fields from the call processor. These CDRs are captured by the Accounting Server and can either be sent to the Billing Support Server or made into a flat file. These fields can be viewed from the Call Records utility from the *VCX* tab.

Table 37   Call Processor CDR Fields

VCX Fields	Description
CDR_ID	Unique identifier for a CDR within the *AccountingData* table.
VERSIONID	Identifies the CDR version for future maintainability.
ACCOUNTID	Identifies how the account number was determined. Values might be user input, calling party number, or no account number provided.
CALLINGPARTY E164ADDRESS	An E.164 number from which the call is placed to the access gateway. **Only** the phone extension is displayed, **not** the entire sip identifier such as *sip:<telephone extension>@<host server>*.
CALLEDPART E164ADDRESS	An E.164 number of the called destination. **Only** the phone extension is displayed, **not** the entire sip identifier such as *sip:<telephone extension>@<host server>*.
INGRESSGATEWAY IPADDRESS	IP address of the access gateway.
CALLTYPE	The type of call placed. 1 – Phone to phone 2 – PC to phone 3 – Phone to PC 4 – Fax to fax
CALLSTARTIME INGRESSGWACCESS	Date and time when the call accessed the ingress gateway.
CALLSTARTTIME ANSWERED	Date and time when the call is answered. For example, receipt of answer supervision until call disconnect.
CALLENDTIME	Date and time when the call disconnects. This is typically the time when the billing stops.
CALLDURATION CONNECTTODISCONN	Call duration in seconds from connect to disconnect.

(continued)

Table 37 Call Processor CDR Fields (continued)

VCX Fields	Description
CODECTYPE	Audio CODEC type used for the call, such as G.729, G.711, or G.723.
CALLTERMINATION CAUSE	Reason for call disconnect or not completed. Note that a value of zero indicates that the call has not been disconnected, or that no disconnect reason was given. Only one value can be provided as the disconnect reason.
	The codes listed come directly from the call processor and correspond to SIP error codes. You can find a detailed list under SIP RFC 3261.
INGRESS ORIGINIATING	Merge Rule IO field associated with Billing Server record.
INGRESS COMPLETE	Merge Rule IO field associated with Billing Server record.
EGRESS ORIGINIATING	Merge Rule IO field associated with Billing Server record.
EGRESS COMPLETE	Merge Rule IO field associated with Billing Server record.

For additional information on using the Call Report Utility, see the Help system in the software.

8

CONFIGURING THE SIP PHONE DOWNLOADER

This chapter describes how to configure the SIP phone downloader application through Enterprise Management Suite (EMS). The SIP downloader is initially configured through the installation scripts. Use this chapter to edit any SIP downloader information.

> *The 3Com phone can be initially configured using the SipPhoneDL.xml file, too, which is located in the /opt/3com/VCX/devdnldsvr/bin directory.*

Configuring the SIP Phone Downloader

You can configure the SIP phone downloader by using the SipPhoneDL.xml file or through Enterprise Management Suite (EMS).

> *CAUTION: If using a dual download environment, two issues can arise: 1) The WAN link utilization can be stressed during a large download (especially if the primary server is down). For example, if you have a large number of phones pointing to a primary download server on the LAN and a secondary download server that sits across a WAN. If the primary building takes a power hit, the download server might take 15 minutes or more to recover, but the phones will all reboot in a few seconds and begin looking for their download. This will begin to flood the WAN link. 2) If there is a version mismatch, you could get into a situation where phones go into a continuous cycle of rebooting and downloading.*

Through the SipPhoneDL.xml File

Use the .xml file to edit the SIP Phone Downloader configuration. The Local Device Name needs to be changed to what ever your host is configured as. You should also give read write permission on this device to the cworks user.

To configure the SIP Phone Downloader using the SipPhoneDL.xml file:

1 Navigate to */opt/3com/VCX/devdnldsvr/bin.*

2 Open *SipPhoneDL.xml* in a text editor.

3 Under *Config*, configure the following tags:

- **LocalDeviceName** — This is your NIC device, such as //dev//dmfe0. Make sure the NIC device has read and write permissions for the cworks user; otherwise, change the permission on this device or run this application as the super user.

- **MaxSessions** — A session is used to download a specific device. The max sessions determines how many devices can be downloaded all at once (parallel). Increasing the max sessions can speed up the overall reboot time but can impact the other server activities such as the Unified Messaging Suite. Increasing the max sessions can also cause problems if a large number of devices are attempting to download via a restricted bandwidth WAN link. 3Com recommends leaving the default setting of 10 to maintain a good performance and reboot time ratio.

- **LocalIPAddress** — IP Address of the server the SIP Phone Downloader is installed on.

4 Save the *SipPhoneDL.xml* file.

Through Enterprise Management Suite   Use EMS configure the SIP Phone Downloader. The Local Device Name needs to be changed to what ever your host is configured as.

Choose the one of the 2 Ethernet interfaces that you want this SIP phone downloader to use.

In super user mode, type the following to print a list of the various downloaders:

```
ifconfig -a
```

1 Launch EMS and discover the server that the SIP Phone Downloader is installed on. The navigation tree looks similar to Figure 58.

Figure 58 SIP Phone Downloader Configuration Tab in EMS
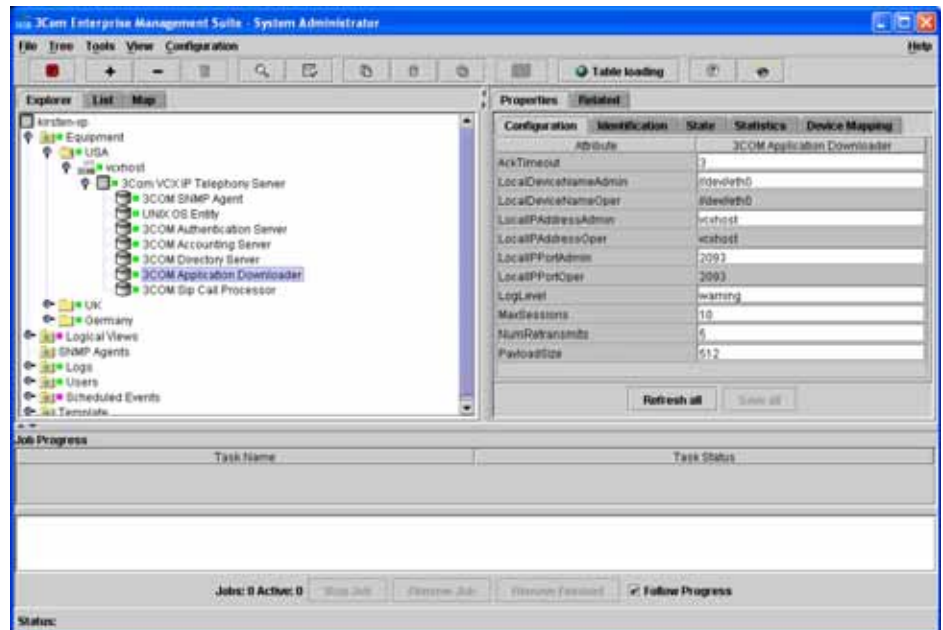
2 Click *3COM Application Downloade***r**.

3 From the *Properties* tabs, click *Configuration*.

4 Set the following attributes by double-clicking each field:

a **LocalDeviceNameAdmin** — Use //dev//hme0, which is your NIC device.

Make sure the NIC device has read and write permissions for the cworks user; otherwise, change the permission on this device or run this application as the super user.

b **LocalIPAddressAdmin** — the IP Address of the server the SIP Phone Downloader is installed on. It picks a default.

c **LocalIPPortAdmin** — Do not change this since it cannot be configured on the 3Com phone.

5 Click **Save all**.

Device Mapping through EMS

The SIP Phone Downloader application comes with two images: ndset_boot_19 and nbset_19, and the boot version is C.403. All images need to be stored in the $HOME/sipdl/images.

To configure the device mapping:

1 Launch EMS and discover the server that the SIP Phone Downloader is installed on. The navigation tree looks similar to Figure 59.

Figure 59 SIP Phone Downloader Device Mapping Tab in EMS
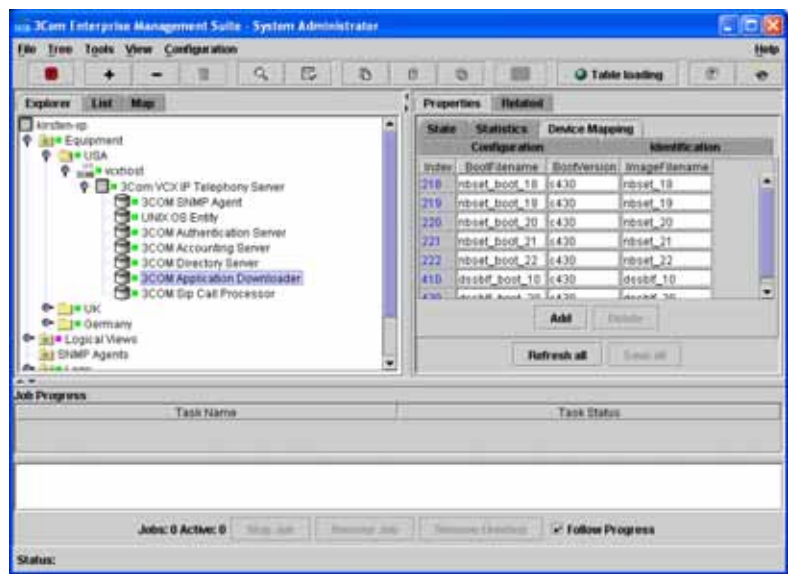
2 Click *3Com Application Downloader*.

3 From the *Properties* tabs, click *Device Mapping*.

4 Set the following attributes by double-clicking each field:

- **BootFilename** — SIP phone downloader code and firmware code provided by the NBX phone. This value should be set to nbset_boot_19.

- **BootVersion** — Version of the firmware code. This value should be set to C403.

- ■ **ImageFilename** — Application code and SIP Phone application. This value should be set to nbset_19.

5 Click *Save all*.

9

MAINTAINING THE V7000 IP TELEPHONY SUITE

This chapter describes various V7000 IP Telephony Server maintenance tasks. Maintenance procedures are concerned with upgrading or uninstalling applications, exporting, importing, or clearing database tables, and any preventative tasks that maintain the health of a system.

Overall System Maintenance

This section provides maintenance tasks that involve the V7000 IP Telephony Server (not including the V7350 IP Messaging Application).

Upgrading a VCX System

Follow this procedure to upgrade your VCX system from either version 5.0.2c to 5.2, or from version 5.2.x to 5.2.y. Following this procedure upgrades the VCX system to an operational state and assumes the VCX system was operational prior to the upgrade occurring. This upgrade also upgrades the 3Com Linux O/S from 1.4.0 to 2.1.1, if upgrading from 5.0.2c.

1 Obtain the latest 5.2 upgrade tarfile from your 3Com reseller and copy it to any server that needs to be upgraded.

- For an All-in-One system (all VCX components including IP Messaging), the file looks similar to *vcx-all-<version>-upgrade.tgz*

- For a Softswitch only system (no IP Messaging), the file looks similar to *vcx-softswitch-<version>-upgrade.tgz*.

- For an IP Messaging only system, the file looks similar to *vcx-ipmsg-<version>-upgrade.tgz*.

2 Login as *root* on the VCX system to be upgraded.

3 Go to */opt/installtemp* directory.

4 Copy the upgrade tarfile to the */opt/installtemp* directory.

5 Untar the file in the */opt/installtemp* directory.

```
tar -xvzf *.tgz
```

6 Go to the *upgrade-<version>* directory created when the file was untarred.

7 Install the components by entering:

`./upgrade-vcx`

This causes the VCX system to check which components need to be upgraded and then it procedes to install them.

8 If you have other servers to upgrade, continue to follow step 2 through step 7 for each server that needs to be upgraded; otherwise, continue with step 10.

9 If your system uses Intelligent Mirroring, on the standby server issue the stopmon command before running the *vcx-switchversion* command on each of the servers being upgraded; otherwise, continue with step 10:

`/usr/app/gen/stopmon`

10 Enter the *vcxswitchversion* command to change the VCX version to the latest version on each server being upgraded (if upgrading more than one server, enter it on the active server first).

If your system uses Intelligent Mirroring, let the active system come up fully before running the *vcxswitchversion* command on the standby system.

`vcx-switchversion  <latest software version>`

such as `vcx-switchversion  5_2_11_12`

The system may stop for several minutes at `Starting vcxswitchversions`. The server then automatically reboots and starts all installed applications.

To verify the software version running, go to the Verifying Release Software Version section on page 198.

Downgrading from 5.2 to 5.0   Follow this procedure to downgrade your VCX system from version 5.2 to 5.0.2c, which must have been previously installed. This procedure provides a means to restore a system to operate with version 5.0.2c. The downgrade does not "back-port" any configuration or database modifications you might have made while running your latest software. Following this procedure restores the VCX system to the operational state it was in prior to the upgrade occurring.

Downgrade Assumptions

This procedure makes the following assumptions:

- The system being downgraded was, prior to the 5.2 upgrade, successfully running VCX 5.0.2c code.
- Prior to the upgrade, database backups were taken using the steps outlined in the section <u>Backing Up the Authentication and Directory Server</u> on <u>page 204</u>.
- If downgrading an IP Messaging system (either stand-alone or part of an all-in-one system), database backups were taken using the steps outlined in the *IP Messaging Installation Guide*.
- Only one O/S upgrade was installed when upgrading from version 5.0.2 to 5.2.
- The person performing the downgrade is trained in VCX operation and procedures and is familiar with VCX terminology.

Downgrade Procedure

1 Verify that back-end server and/or the IP Messaging database back-ups have been taken if the system was running these components.

   a If the system is running back-end servers, a database backup must be taken as outlined in <u>Backing Up the Authentication and Directory Server</u> on <u>page 204</u>.

   b If the system is running IP Messaging, a database backup must be taken as outlined in the *IP Messaging Installation Guide*.

2 Switch the version to version 5.0.2c.

   a Log in as *root*.

   b Enter the following command:

   `vcx-switchversion --manual 5.0.2c`

   This command stops the VCX services, switches the */opt/3com/VCX* link to point to the requested version, and issues a warning that databases must be restored.

> $\boxed{i}$ *You **must not** reboot the system or restart VCX services until databases have been restored. Eventhough version 5.0.2c is selected, the databases still contain version 5.2 data. This combination will not operate successfully.*

3 Stop the database replication.

If the system is running back-end services and replication is in use, you must complete this step; otherwise, continue with step 4.

    a On the Master Definition server, login in as *cworks*.

    b Go to */opt/3com/VCX/auth/bin.*

    c Enter the following command to stop replication:

        `./dropReplication`

4 Restore the databases with the backups that were taken prior to the upgrade.

    a To restore the back-end server databases, refer to Authentication and Directory Server Database Restoration on page 205. If replication was in use, restore the databases on both servers.

    b To restore the IP Messaging databases, refer to *IP Messaging Installation Guide*. If mirroring was in use, restore the databases on both servers.

5 Re-establish database replication.

If the system was running back-end servers with replication, replication must be re-established; otherwise, go to step 6.

    a On Master Definition Server login is as *cworks*.

    b Go to */opt/3com/VCX/auth/bin*.

    c Enter this command to restart replication:

        `./setupReplication`

    If any errors occur, use the *./dropReplication* script to drop the replication and then run *./setupReplication* again.

    d Enter the following script to check if the replication is complete:

        `./checkReplication`

    When the replication is complete, *Multi-Master Replication Status* is reported as *NORMAL*. Do not continue until the replication is complete.

6 Switch the O/S version.

The upgrade from VCX version 5.0.2c to VCX 5.2 required installation of a new VCX Linux O/S version. To downgrade, it is necessary to revert to the previous Linux O/S installation.

    a Log in as *root*.

    b Enter the following command to determine available O/S versions:

```
vcx-os-query
```

This produces output resembling the following:

```
OS   Version    Partition        Label            Status
A    1.4.0      /dev/sda2        /A
B    2.1.1      /dev/sda3        /B               active
```

The order of the O/S versions (A or B) may be reversed depending on the upgrade history of the system. The active version of the O/S reflects the version shipping with VCX 5.2.

c Select the 1.4.0 O/S version for use at the next reboot by entering:

```
vcx-os-switch 1.4.0
```

To confirm that this is selected, re-enter the **vcx-os-query** command. The 1.4.0 status is listed as *selected* as shown below.

```
OS   Version    Partition        Label            Status
A    1.4.0      /dev/sda2        /A               selected
B    2.1.1      /dev/sda3        /B               active
```

7 Downgrade the telephone SIP Phone application. The SIP phone application is downgraded independently from the rest of the VCX system.

a Go to the directory that was automatically created during the 5.2 upgrade:

```
cd /opt/installtemp/upgrade-5.2
```

b Remove SIP Phone Application:

```
vcx-remove --allmatches sipPhApp
```

c Install the 5.0.2c version of the SIP Phone Application:

```
vcx-install sipPhApp-5.0.2c.rpm
```

8 Reboot the VCX system by entering:

```
reboot
```

The system reboots to VCX Linux 1.4.0 and starts up services of version 5.0.2c.

> **i** *Any version of the VCX software is not removed from the system by using this procedure.*

Verifying Software Versions

This section describes how to verify the software versions of individual components and entire releases.

Verifying Component Software Versions

To verify what the component software versions are:

1 Log onto the VCX system as *root*.

2 Navigate to */opt/3com/VCX/scripts*.

3 Enter this command:

```
./vcx-assemble --validate
```

This lists all of the components and their software versions that comprise the current running assembly.

Verifying Release Software Version

To verify what the running release software version is:

1 Log onto the VCX system as *root*.

2 Navigate to */opt/3com*.

3 Enter this command:

```
ls -l
```

This lists all of the installed releases and shows what the running VCX version is. The running VCX version is preceded by a symbolic link icon (–>).

```
lrwxrwxrwx 1 root root 21 Sep 22 07:11 VCX ->
/opt/3com/VCX.5_2_3_4
drwxr-xr-x   11 root root 4096 Sep 22 07:11 VCX.5_2_3_4
drwxr-xr-x   10 root root 4096 May  7 09:13 VCX.5_0_19_20
```

In this example, version 5.2.3.4. The other listed release, release 5.0.19.20, is installed, but not running.

Clearing Cache from Tomcat

If you experience some JSP page errors while accessing the provisioning server application such as "page not found", "page doesn't render", "page doesn't render correctly", or "exception faults", it may be necessary to clear the cache of Tomcat.

To clear cache from Tomcat:

1 Navigate to
/opt/3com/3rdparty/tomcat.<version>/vcx-scripts/init.d.

2 Stop Tomcat.

./tomcat stop

3 Enter the following command to clear the cache:

rm -rf ../../work/

4 Restart Tomcat.

./tomcat start

Stopping Tomcat   To stop the tomcat application:

1 Login into the server hosting the VCX IP Telephony System.

2 Login as tomcat. (default password is tomcat).

3 Enter **/opt/3com/VCX/tomcat/bin**.

4 Enter **./shutdown.sh**.

5 Enter **exit**.

Rediscovering the IP   After making configuration changes on any of the VCX components,
Telephony Server in   rediscover the 3Com VCX IP Telephony Server to refresh the configuration
EMS   MIB values.

To rediscover to 3Com VCX IP Telephony Server in EMS:

1 In the explorer tree, right-click the *3Com VCX IP Telephony Server*.

2 From the pop-up menu, click *Rediscover*.

The progress is shown in the *Job Progress* section of the EMS GUI.
When the command has completed, the *Working* icon changes to a
Finished icon.

Saving the 3Com VCX   The 3Com VCX IP Telephony Server configuration can be saved to a CFM
IP Telephony Server   file. After saving the configuration, the CFM file can be set as a baseline
Configuration in EMS   so it can be used for restoring. A backup produces a (binary) CFM file
containing a snapshot of the system configurables (basically, any object
that is SNMP manageable on all components). This does not include
databases, user profiles, voice mail backup, etc. It is basically just the
system configuration available via SNMP.

To save the 3Com VCX IP Telephony Server configuration in EMS:

1 From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.

2 From the pop-up menu, select *Configuration* and then select *Backup*.

The progress is shown in the *Job Progress* section of the EMS GUI. When the save is finished, the *Working* icon changes to a *Finished* icon.

> **i** *The default directory for .CFM files is: ...3Com\EMS\backups. The file name is saved as follows: <component IP address>_YYYYMMDDHHMMSS.cfm. For example, 192.168.120.110_20041029185959.cfm.*

Restoring the 3Com VCX IP Telephony Server Configuration in EMS

The 3Com VCX IP Telephony Server configuration can be restored from a saved CFM file. The CFM file restores any SNMP manageable system configurables. It automatically chooses the correct CFM file to restore to the same server the backup was taken from. A backup cannot be applied from one server to another.

To restore the 3Com VCX IP Telephony Server configuration in EMS:

1 From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.

2 From the pop-up menu, select *Configuration* and then select *Restore Current*.

The progress is shown in the *Job Progress* section of the EMS GUI. When the restoration is finished, the *Working* icon changes to a *Finished* icon.

Changing a Daylight Savings and Timezone Configuration

In a VCX system the daylight savings and timezone configuration should only be modified using the `vcx-config-network -- wizard` tool that is located on the VCX server. Even though it appears the timezone and daylight savings time can be modified using Enterprise Management Suite (EMS), all configurations are not currently supported since you cannot change the daylight savings status (enabled to disabled or vice versa) from the original configuration. Also, not as many timezone options are available in EMS as there are through the `vcx-config-network -- wizard` tool.

When using the `vcx-config-network -- wizard` tool, both the Daylight Savings and Timezone preference are configured at the same time.

To modify the daylight savings and/or timezone configuration for your VCX system:

1 Login into the VCX server as *root*.

2 Enter this command to start the VCX network configuration tool:

```
vcx-config-network -- wizard
```

3 Press *Enter* until you come to this question:

```
Please select a geographic location from the following list:
```

4 If the geographic location needs to be modified, type the correct geographic location from the options listed and then press *Enter*; otherwise just press *Enter*.

The `Please select a country from the following list:` question appears.

5 If the country needs to be modified, type the correct country from the options listed and then press *Enter*; otherwise just press *Enter*.

The `Please select a time zone from the following list:` question appears.

6 From the options listed, type in the time zone needed. This determines both the timezone and daylight savings preference since they are built in together.

7 Press *Enter*.

The network configuration tool applies the changes.

| **Call Processor Maintenance** | This section provides maintenance tasks that are specific to just the call processor. |

Starting the Call Processor

To start the Call Processor:

1 Log on to the machine hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/bin* directory.

3 Enter this command:

`./callp start`

Restarting the Call Processor

To restart the Call Processor:

1 Log on to the machine hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/bin* directory.

3 Enter this command:

`./callp restart`

Stopping the Call Processor

To stop the Call Processor:

1 Log on to the machine hosting the Call Processor.

2 Navigate to the */opt/3com/VCX/callprocessor/bin* directory.

3 Enter this command:

`./callp stop`

Verifying the Call Processor State

There are two ways to verify whether or not the Call Processor is running. This can be done either through EMS or from a command prompt on the machine hosting the Call Processor.

Through EMS

To verify the state of the Call Processor using EMS:

1 Login to EMS.

2 Navigate to the Call Processor.

3 The status indicator light that appears next to the *3COM Sip Call Processor* identifies these states:

- green — it is running
- red — it is down

From a Command Prompt

To verify the state of the Call Processor from a command prompt:

1 Log into a machine hosting the Call Processor as root.

2 Enter the following command:

`ps -ef | grep call`

- Running — the Call Processor Process ID is listed.
- Not Running — nothing is listed except the root ID.

Back-end Server Maintenance

This section provides maintenance tasks that are specific to the accounting, authentication, billing support, and directory servers.

Starting the Accounting, Authentication, and Directory Servers

To start either the accounting, authentication, or directory server:

1 Login to the server hosting the back-end server you want to start.

2 Go to the */opt/3Com/VCX/<back-end server>/bin*.

where *<back-end server>* equals:
accounting server — **acct**
authentication server — **auth**
directory server — **dir**

3 Enter `./<back-end server> start`

Stopping the Accounting, Authentication, and Directory Servers

To stop either the accounting, authentication, or directory server:

1 Login to the server hosting the back-end server you want to stop.

2 Go to the */opt/3Com/VCX/<back-end server>/bin*.

where *<back-end server>* equals:
accounting server — **acct**

authentication server — **auth**
directory server — **dir**

3 Enter **./<back-end server> stop**

Backing Up and Restoring Databases
The back up and restore feature is available for the authentication and directory server databases. 3Com recommends backing up databases regularly and also before performing any upgrades. Once an upgrade has been performed you can use the restore feature to repopulate the databases.

> **i** *You cannot back-up an older version of the VCX IP Telephony System and restore it to a newer version. It must be the same version.*

Backing Up the Authentication and Directory Server

A script is provided to back up data from the authentication and directory server database.

1 Login as user *cworks*.

2 Verify that Tomcat, authentication server, and directory server applications are stopped.

   a To stop tomcat, log in as *tomcat* using the password *tomcat*.

   su - tomcat

   b Change the directory to *$CATALINA_HOME/bin.*

   c Enter **./shutdown.sh**

   d Enter **exit** to log out as tomcat.

   e To stop the authentication server, navigate to */opt/3com/VCX/auth/bin.*

   f Enter **./auth stop**

   g To stop the directory server, navigate to */opt/3com/VCX/dir/bin.*

   h Enter **./dir stop**

3 Change the directory to */opt/3com/VCX/auth/bin*.

4 Enter the following command to start the authentication server database back up.

   ./backupAuth

The script prompts you to verify if Tomcat and the authentication server applications are stopped.

A backup file named *authbackup.<version number>.tgz* is generated and saved in the */opt/3com/VCX/auth/db/*export directory.

5 Login as user *cworks.*

6 Change the directory to */opt/3com/VCX/dir/bin*.

7 Enter the following command to start the directory server database back up.

./backupDir

The script prompts you to verify if Tomcat and the directory server applications are stopped.

A backup file named dirbackup.<*version number*>.tgz is generated and saved in the */opt/3com/VCX/dir/db/export* directory.

8 If you are not planning on restoring the back-end servers immediately, restart Tomcat, the authentication server, and the directory server; otherwise, continue with the <u>Authentication and Directory Server Database Restoration</u> section.

a To start tomcat, log in as *tomcat* using the password *tomcat*.

su - tomcat

b Change the directory to *$CATALINA_HOME/bin.*

c Enter **./startup.sh**

d Enter **exit** to log out as tomcat.

e To start the authentication server, go to */opt/3com/VCX/auth/bin.*

f Enter **./auth start**

g To start the directory server, go to */opt/3com/VCX/dir/bin.*

h Enter **./dir start**

Authentication and Directory Server Database Restoration

A script is provided to restore data to the authentication and directory server databases.

1 Change directory to */opt/3com/VCX/auth/db/export*.

2 Use the secure copy command (scp) using the password *cworks* to copy the *authbackup.<version number>.tgz* file generated by the back up to the */opt/3com/VCX/auth/db/import* directory.

scp authbackup.*.tgz cworks@<IP address of server>:/opt/3com/VCX/auth/db/import

3 Login as user *cworks*. If using replication, login as *cworks* on both the primary and secondary authentication server.

4 Verify that Tomcat, authentication server, and directory server applications are stopped.

  a To stop tomcat, log in as *tomcat* using the password *tomcat*.

   su - tomcat

  b Change the directory to *$CATALINA_HOME/bin.*

  c Enter **./shutdown.sh**

  d Enter **exit** to log out as tomcat.

  e To stop the authentication server, navigate to */opt/3com/VCX/auth/bin.*

  f Enter **./auth stop**

  g To stop the directory server, navigate to */opt/3com/VCX/dir/bin.*

  h Enter **./dir stop**

5 Change directory to */opt/3com/VCX/auth/bin*.

6 If replication is running, enter the following command from the primary authentication server; otherwise, continue with step 7:

   ./dropReplication

7 Enter the following command to start the authentication server database restoration. If you use replication, enter the command on both the primary and secondary authentication server.

   ./restoreAuth

   The script prompts you to verify if Tomcat and the authentication server applications are stopped.

   The back up data located at */opt/3com/VCX/auth/db/import/authbackup.<version number>.tgz* is restored to the authentication server database.

8 Change directory to */opt/3com/VCX/dir/db/export*.

9 Use the secure copy command (scp) using the password *cworks* to copy the *dirbackup.<version number>.tgz* file generated by the back up to the */opt/3com/VCX/dir/db/import* directory.

   scp dirbackup.*.tgz cworks@<IP address of
   server>:/opt/3com/VCX/dir/db/import

10 Login as user *cworks*. If using replication, login as *cworks* on both the primary and secondary directory server.

11 Change directory to */opt/3com/VCX/dir/bin*.

12 Enter the following command to start the directory server database restoration. If you use replication, enter the command on both the primary and secondary directory server.

./restoreDir

The script prompts you to verify if Tomcat and the directory server applications are stopped.

13 If using replication, enter this command from the primary authentication or directory server to start the replication (it can be started from either the authentication or directory server):

./setupReplication

14 Once the replication is complete, use the **./checkReplication** command to verify that it shows *NORMAL*.

The back up data located at */opt/3com/VCX/dir/db/import/dirbackup.<version number>.tgz* is restored to the directory server database.

15 Restart the authentication server, directory server, and Tomcat.

a To start tomcat, log in as *tomcat* using the password *tomcat*.

su - tomcat

b Change the directory to *$CATALINA_HOME/bin*.

c Enter **./startup.sh**

d Enter **exit** to log out as tomcat.

e To start the authentication server, navigate to */opt/3com/VCX/auth/bin*.

f Enter **./auth start**

g To start the directory server, navigate to */opt/3com/VCX/dir/bin*.

h Enter **./dir start**

Exporting Table Data Use the CWDATA package to export tables into flat files. Export data as follows:

■ For one table in a schema (except the runtime tables). See Exporting Table Data for a Single Table.

■ For all the tables under one schema (except the runtime tables). See
Exporting Table Data for all Tables in a Schema.

Exporting data saves the current configuration.

Exporting Table Data for a Single Table

Data for a single table can be exported to the export directory listed in
the Oracle initialization folder.

i> *Runtime tables cannot be exported.*

To export data for a single table:

1 From a SQL Plus command line, login as the *cwauth* user.

2 Execute the following:

For this procedure, change the following to match the system:

■ *Change the value of* **p_dir** *to the export directory.*

■ *Change the* **p_tabname** *to the name of the table being exported.*

■ *Make sure to enter the procedure name* **EXACTLY** *as shown.*

```
SET SERVEROUTPUT ON
declare
   p_dir varchar2(255);
p_tabname varchar2(255);
begin
     p_dir:='/tmp/export';
     p_tabname:='table_name';
     cwdata.DUMP_ONE_TAB(p_dir, p_tabname);
end;
```

Exporting Table Data for all Tables in a Schema

Data for all tables can be exported in a schema to the export directory
listed in the Oracle initialization folder.

i> *Runtime tables cannot be exported.*

To export all the tables in a schema:

1 From a SQL Plus command line, login as the *<schema>* user.

2 Execute the following:

For this procedure, change the following to match the system:

- *Change the value of* **p_dir** *to the export directory.*

- *Make sure to enter the procedure name* **EXACTLY** *as shown.*

```
SET SERVEROUTPUT ON
declare
p_dir varchar2(255);
begin
     p_dir:='/tmp/export';
     CWDATA.DUMP_ALL_TAB(p_dir);
end;
```

Importing Saved Table Data

Once saved, (see Exporting Table Data) the data can be imported into any authentication server database as long as the version numbers for the exporting and importing authentication servers match.

The following methods may overwrite existing files in the /opt/3com/VCX/<schema>/db/<schema>/bulkload directory. To prevent files from being overwritten, rename or move the current .txt files.

If the data in the database and the data being importing have duplicated data, the duplicate data needs to be cleared before loading custom data. Tables need to be manually edited using a graphic tool such as Oracle DB Studio if the entire database is not being cleared.

Import the saved table data as follows:

- To install a new back-end server database, before bulk loading, copy the exported files to the /opt/3com/VCX/<schema>/db/<schema>/bulkload directory and then load the data into the database.

- To add the exported data to an existing database that already has data loaded, copy the exported files to the /opt/3com/VCX/<schema>/db/<schema>/bulkload directory and then load the data into the database one table at a time.

Clearing the Configurable Tables

Use this procedure to clear all the data tables in either the accounting, authentication, or directory server.

Once data is deleted it must be reloaded from the text files.

To clear the configurable tables from the back-end server database:

1 Log on to the directory server as *cworks*.

2 Change to the */opt/3com/VCX/<schema>/bin* directory:

```
cd /opt/3com/VCX/<schema>/bin
```

3 Clear the data by entering the following command:

```
./besbulkload.pl -s <TNSname> -n <schema> -p
<schema_password> -clear
```

Running Individual Tasks on the Accounting Server

You can run the following individual tasks using SQL*Plus:

- Exporting CDRs
- Deleting CDRs

Exporting CDRs

This procedure is for extracting CDR fields (customer configured in table JOB_EXPORT_FIELDS_MAP) into flat files. According to oracle file I/O, the output path must be an existing directory, where Linux user "oracle" has write permission, and this path must be defined or compatible in the oracle initialization file (init<SID>.ora) under the entry of UTL_FILE_DIR.

To export CDRs, from a SQL Plus command line, login as the *cwacct* user and execute CWE.OUTPUT. Refer to the following example, making sure to set the *p_dir* and *p_filename* variables equal to the correct directory and filename. You can also modify the *p_separator* variable to change the column separator.

```
SET SERVEROUTPUT ON;
DECLARE
p_dir varchar2(250);
p_filename varchar2(250);
p_separator varchar2(10);
BEGIN
p_dir:='/export/home/users/oracle/temp/output';
p_filename:='CDR';
p_separator:='|';
CWE.OUTPUT(p_dir,p_filename,p_separator);
END;
```

After the procedure has completed successfully, check the content of the output file. The actual file name is the *p_filename* affixed with the timestamp.

> **i** | *If this is the first time exporting CDRs, make sure the UTL_FILE_DIR entry in the oracle initialization file (init<SID>.ORA) is set correctly.*

Deleting CDRs

This procedure is for deleting CDRs from the accounting server database. Two configurations are affected by using this procedure: one is the retention days, which is defined as the column of HOLD_DAYS in table JOB_DELETE_CDRS; the other is BSS_SENSITIVE and upload range PREV_ENDING_CDR and CURR_ENDING_CDR in table UPLOAD_HISTORY. Default retention days is 7 if no value is configured. If there is billing support server in the system, and BSS_SENSITIVE is set as 1, then once CDRs are uploaded to billing support server, these CDRs are ready to be removed from accounting server database when executing deletion procedure, no matter what the retention period is.

Even though BSS_SENSITIVE is set 1, and the billing support server uploads CDRs from the accounting server, those CDRs are not deleted immediately after the upload action, they are marked as ready to be deleted, but they will be deleted when the deletion procedure on accounting server is called.

To delete CDRs from the accounting server database, from a SQL Plus command line, login as the *cwacct* user and execute *CWDELETE.DELCDR* as follows:

```
set serveroutput on
begin
cwdelete.delcdr;
end;
```

Monitoring Accounting Server Activity on the Accounting Server

The *Monitor State* command opens the *Monitor State* window. Use this window to monitor the operational state, usage state, or administration state of the accounting server.

To monitor the activity of the accounting server using EMS:

1 In the explorer tree, right-click the accounting server.

2 From the pop-up menu, click *Monitor State*.

> **i** | *Refer to the Enterprise Management Suite User Guide for more information.*

Rediscovering the Accounting Server

After making configuration changes on the accounting server, rediscover the 3Com VCX IP Telephony Server to refresh the configuration MIB values.

To rediscover to 3Com VCX IP Telephony Server:

1 In the explorer tree, right-click the 3Com VCX IP Telephony Server.

2 From the pop-up menu, click *Rediscover*.

A dialog box appears and displays the progress of the command. When the command has completed, the *Working* icon changes to a *Finished* icon.

Checking the Data on the Accounting Server

Using a graphic tool such as Oracle DBA Studio, check the validity of the data as follows:

1 In the acct_server_list table, note the values in the SERVER_ID_ACCT column; there should be one record for each accounting server.

2 In the acct_server_list table, verify that the SERVER_CONNECTION field is set to the service name of the accounting server database to which the billing support server should link (i.e. the accounting server database TNS name; the same hostname used when you created the database link).

3 Check the bss_server_list and bss_acct_server_map tables for the following:

a Check the validity of the data, focusing on the SERVER_ID_ACCT and SERVER_ID_BSS columns.

b Make sure that the mapping relationship of SERVER_ID_ACCT is correct and consistent.

Manually Completing an Incomplete Call on the Billing Support Server

When merging CDRs into super CDRs, incomplete calls are automatically set to complete based on the *time_out_hour* field in the *job_merge_cdr* table. Manually complete incomplete calls by updating the *rt_super_cdr_status* table's *code_complete_id* field to '3' (completed by operator).

There are two ways to update the *rt_super_cdr_status* table's *code_complete_id* field:

■ To manually complete a single incomplete call, open the billing support server's *rt_super_cdr_status* table using Oracle DBA Studio or

Enterprise Manager and change the *code_complete_id from 0 (incomplete) to 3* (completed by operator) for the specific record.

- To manually complete multiple incomplete calls, update the *rt_super_cdr_status* table using a SQL statement similar to one of the following scripts:

```
update rt_super_cdr_status
set code_complete_ID=3
where callidentifier=HEXTORAW ('callidentifier value
string');
```

or

```
update rt_super_cdr_status
set code_complete_ID=3
where textcallidentifier='textcallidentifier value
string';
```

Enabling Message Tracing

The acctconfig.xml, authconfig.xml, or dirconfig.xml file has a setting to enable message tracing through formatted Abstract Symbolic Notation (ASN.1). This produces an understandable output that can be used for trouble locating and clearing.

> **i** *ASN.1 is a message formatting and encoding standard which is the basis of the 3Queue protocol used between Tier 2 and Tier 3.*

To enable message tracing:

1 Log in as *root*.

2 Stop the back-end server.

3 Go to the */opt/3com/VCX/<schema>/conf* directory.

4 Edit the *XXXXconfig.xml* file for the back-end server so Formatted ASN Packet Tracing is enabled.

For example:

```
<!-- Formatted ASN packet Tracing-->^M
<!-- 0 = OFF, 1 = ON -->^M
<ASNTRACE VALUE = "1"/>
```

5 Start the back-end server.

The logs are written to the directory that the back-end server is run from */opt/3com/VCX/<schema>/log*.

Enabling Server Logging   The acctconfig.xml, authconfig.xml, or dirconfig.xml file has a setting to enable server logging. This is used to control the common logging function, which is shared with all Tier 2 and Tier 3 devices. This controls the logging of various status, warning, and error messages in the server. For normal operation, the default settings might be sufficient, but for trouble locating purposes, the various error, warning, informational, and tracing log levels can also be used.

To enable message tracing:

1 Log in as *root*.

2 Stop the back-end server.

3 Go to the */opt/3com/VCX/<schema>/conf* directory.

4 Edit the *XXXXconfig.xml* file for the back-end server so server logging is enabled.

For example:

```
<BES_COMMONLOGG_CONFIG>
<!-- Set Y or N to enable or Disable -->
<LOG_INFO LOG_FILE_PATH ="../log/" LOG_FILE_NAME="AuthServer"
LOG_TO_CONSOLE="Y" LOG_TO_FILE="Y" LOG_TO_SYSTEM = "Y"
LOG_TRACE_ON ="Y" LOG_INFO_ON ="Y" LOG_WARN_ON = "Y"
LOG_ERROR_ON = "Y" LOG_SYSTEM_ON="Y" LOG_TIME_INTERVAL="4"
LOG_TIMESTAT_ON="Y" NUMBER_OF_MSG="1000"/>
```

5 Start the back-end server.

The logs are written to the directory that the back-end server is run from */opt/3com/VCX/<schema>/log*.

SNMP Support   The SNMP Common Agent needs to be enabled in order for the back-end server to be recognized by SNMP MIB browsers such as Enterprise Management Suite (EMS).

Verifying SNMP Support

To verify that either the acctconfig.xml, authconfig.xml, or dirconfig.xml files are set up for the back-end server:

1 Log in as *root*.

2 Go to the */opt/3com/VCX/<schema>/conf* directory.

3 Open the *XXXXconfig.xml* file.

4 Under the *SNMP Configuration* tag, verify that the *SNMP Common Agent* is enabled.

It should look like this:

```
<!-- Enable or Disable SNMP Common Agent-->^M
<!-- Interface, 0 = OFF, 1 = ON  -->^M
<ENABLED VALUE = "1"/>
```

5 If SNMP support is disabled, continue with Enabling SNMP Support.

Enabling SNMP Support

To enable SNMP support:

1 Log in as *root*.

2 Stop the common agent.

3 Stop the back-end server you want to enable SNMP support on.

4 Go to the */opt/3com/VCX/<schema>/conf* directory.

5 Edit the *XXXXconfig.xml* file.

6 Under the *SNMP Configuration* tag, edit the *XXXXconfig.xml* file so the SNMP Common Agent is enabled.

For example:

```
<!-- Enable or Disable SNMP Common Agent-->^M
<!-- Interface, 0 = OFF, 1 = ON  -->^M
<ENABLED VALUE = "1"/>
```

7 Start the common agent.

8 Start the back-end server.

> **i** *If using EMS, the 3Com VCX IP Telephony Server needs to be rediscovered before viewing/managing any of the settings on the authentication server. For configuration information, see* SNMP Support.

Restarting Systems and Services in Enterprise Management Suite

After performing routine maintenance on either the accounting, authentication, or directory server, the server must be restarted using Enterprise Management Suite (EMS).

To restart the back-end server systems and services in EMS:

1 From the explorer tree, click the individual component.

2 Right-click and select *Maintenance*, and then click *Hard Restart*.

Reserving and Unreserving the Back-end Server in EMS	The *Operator Reserve* command reserves either the accounting, authentication, or directory server so that no one else can perform operations on the server using EMS. The *Operator Unreserve* command cancels the reservation.

Reserving Using EMS

To reserve the back-end server using EMS:

1 In the explorer tree, right-click the individual back-end server.

2 From the pop-up menu, click *Operator Reserve* to reserve the back-end server.

> $\boxed{\mathbf{i}}$ *If the back-end server is reserved, check the **State** tab to see who has reserved the card.*

Unreserving Using EMS

To unreserve either the accounting, authentication, or directory server using EMS:

1 In the explorer tree, right-click the back-end server.

2 From the pop-up menu, click *Operator Un-reserve* to unreserve the back-end server.

Updating the Server State in EMS	Use the *State* command to update EMS with the current operational state, usage state, or administration state of the back-end server.

To update the state of either the accounting, authentication, or directory server using EMS:

1 In the explorer tree, right-click the back-end server.

2 From the pop-up menu, select *State* and then click *Update*.

Enabling Back-end Server Traps in EMS	Back-end server traps can be enabled and disabled at the 3COM SNMP Agent level.

Alarm notification requires two components: a device (the 3Com VCX IP Telephony Server) to send traps and a device (an alarm server) to receive them and alert the network manager. Traps are sent over the Simple Network Management Protocol (SNMP), which runs on the User Datagram Protocol / Internet Protocol (UDP/IP).

First, use Enterprise Management Suite to tell the 3Com VCX IP Telephony Server where to send traps. Then use Enterprise Management Suite to enable the traps. Finally, start the trap generation.

Configuring Trap Destinations

To configure a trap destination using EMS:

1 From the Enterprise Management Suite *Explorer* tab, select *3Com VCX IP Telephony Server* to configure.

2 From the *Properties* tab, select *Trap Destinations*.

3 At the bottom of the right-hand pane, click *Add*.

The Add Row to Table dialog box opens.

4 Type the IP address and Community string for the trap destination.

5 Click *OK*.

The Trap Destinations tab changes to show the new trap destination.

Enabling Back-end Server Traps

The 3Com VCX IP Telephony Server can generate traps when the authentication server changes state.

To enable back-end server traps using EMS:

1 From the EMS *Explorer* tab, click *3Com VCX IP Telephony Server* to configure.

2 Select the *3COM SNMP Agent* element.

3 From the *Properties* tab, select *Trap Configurations*.

Figure 60 shows the location for all back-end server traps.

Figure 60   Enabling Back-end Server Traps
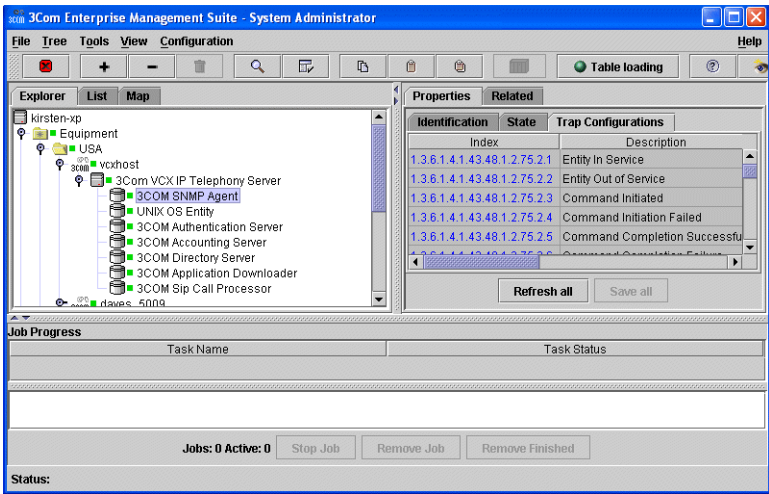
4 Enable and disable SNMP traps according to your customized needs.

Table 38 lists SNMP traps for the authentication server.

Table 38   Back-end Server SNMP Traps

Trap MIB	Description
itbesGenericError	Back-end Server generic error.
itbesServiceInstallFailed	Back-end Server service installation failed.
itbesServiceUninstallFailed	Back-end Server service uninstall failed.
itbesServiceStartFailed	Back-end Server Service Failed to start.
itbesServiceStopFailed	Back-end Server service failed to stop.
itbesDatabaseConnectFailed	Back-end Server connection to authorization database failed.
itbesUnrecognizedMessageReceived	Back-end Server received unrecognized message.
itbesGenericQueueCreateFailed	Back-end Server failed to create the generic queue.
itbesGenericQueueOpenFailed	Back-end Server failed to open the generic queue.
itbesGenericQueueDeleteFailed	Back-end Server failed to delete the generic queue.
itbesPrivateQueueCreateFailed	Back-end Server failed to create the private queue.

(continued)

Table 38   Back-end Server SNMP Traps (continued)

Trap MIB	Description
itbesPrivateQueueOpenFailed	Back-end Server failed to open the private queue.
itbesPrivateQueueDeleteFailed	Back-end Server failed to delete the private queue.
itbesResponseQueueDeleteFailed	Back-end Server failed to delete the response queue.
itbesResponseQueueCreateFailed	Back-end Server failed to create the response queue.
itbesResponseQueueOpenFailed	Back-end Server failed to open the response queue.
itbesAdminQueueCreateFailed	Back-end Server failed to create the admin queue.
itbesAdminQueueOpenFailed	Back-end Server failed to open the admin queue.
itbesAdminQueueDeleteFailed	Back-end Server failed to delete the admin queue.
itbesHarvesterDtsPkgInstSuccess	Harvester DTS Package installation succeeded.
itbesHarvesterDtsPkgInstFailure	Harvester DTS Package installation failed.
itbesDatabaseNotResponding	This trap is generated when the Back-end Server database stops responding.

5 Click *Save all*.

6 Back up the server configuration.

Receiving Traps

To start and stop receiving SNMP traps using EMS:

1 From the EMS *Explorer* tab, right-click *3Com VCX IP Telephony Server*.

2 From the pop-up menu, select *Traps*.

From the pop-up menu, select *Start receiving* to begin receiving SNMP traps or *Stop receiving* to stop receiving SNMP traps.

A

CALL PROCESSOR COMMAND LINE INTERFACE COMMANDS

This chapter contains a complete listing of command line interface (CLI) commands available for the call processor.

Call Processor CLI Overview

The call processor can be configured from the server where the call processor was installed by using the remoteCLI application. The remote CLI application is located in the */opt/3com/VCX/callprocessor/remoteCli/bin* directory and uses the same editing style as the text editor *vi*. The CLI interface provides a complete view of all of the system configurables and allows you to configure those parameters in real time. The configuration are automatically written to the configuration file (nmdb.xml) to maintain the configuration between application restarts.

The Remote CLI application retains 50 commands in its history, which can be displayed using either the up or down arrows of the keyboard. The Remote CLI application is not case sensitive and commands can be truncated as long as they are still uniquely identified; otherwise, it will use the first variable listed alphabetically.

For example, the following shows two ways to enter a command, which provides the same output:

config CcTrusted RowStatus=4 Index=1 TrustedAddress=<IP address>

OR

conf cct row=4 index=1 trustedaddr=<IP address>

For security the Remote CLI application can only be accessed from the same machine the Call Processor is installed on.

CLI Command Descriptions

The remote CLI application uses the following commands for administering the Call Processor:

Table 39   Remote CLI Command Descriptions

Command	Description
exit	Quits the Remote CLI application.
shutdown	Shuts down the Call Processor gracefully.
version	Shows the software version of the Call Processor and the version of the Distributed Message Routing (DMR) 3Com proprietary protocol.
show	Lists all of the Call Processor tables that are used for configuration. Con be used to determine all of the commands for each configurable.
config	Lists all of the configurable tables.
diagnostic	Allows a user to make run-time only modifications to log levels.
exec	Causes a plugin to execute a plugin specific command. To display available commands for a plugin, issue the name of one of the plugins listed from the plugin CLI command along with the execute command.
statistics	Displays various types of counters for a particular plugin. To display available statistics for a plugin, issue the name of one of the plugins listed from the plugin CLI command along with the statistics command.
send	Sends a message to a plugin.
dump	Configures a plugin to display troubleshooting information.
messageTrace	Turns on logging for all DMR messages within the Call Processor.
	Note: Massage Tracing should only be used for short time intervals since it affects the Call Processor's performance due to unnecessary overhead.
help	Lists all of the possible commands that can be used, which are listed in this table.
plugins	Lists all of the plugin modules installed for the Call Processor.

B MANUALLY CONFIGURING THE AUTHENTICATION SERVER

3Com recommends configuring the authentication server through the provisioning server. See "Configuring the Authentication Server" on page 19. This appendix describes the tables used when configuring users or other authentication functions in large quantities (in bulk).

Information on how to bulkload data into the authentication server database is provided in "Common Commands" on page 315.

Authentication File Location

The authentication server bulkload files are located here:

/opt/3com/VCX/auth/db/cwauth/bulkload.

Configuring Authentication Server Database Tables

This section outlines the text files that are used to configure the authentication sever.

Any table (text file) not described in this section is not supported.

Configuring bridge_map

The bridge_map table links the primary URI to a secondary URI (allowed bridge) with an authorized line that the secondary URI can receive call on for the primary URI.

Table 40 bridge_map_data.txt Fields

Column Name	Description	Value
PRIMARY_URI_ID	This refers to a unique identification number for the primary URI.	Integer
ALLOWED_BRIDGE_URI_ID	This refers to a unique identification number for the secondary URI.	Integer
PHONE_LINE_NO	This refers to the line that is authorized to be received by the secondary URI for the primary URI.	Integer

Add one row for each mapping. For example:

```
|PRIMARY_URI_ID|ALLOWED_BRIDGE_URI_ID|PHONE_LINE_NO
3|2|4|
3|4|4|
```

Configuring bw_list   The bw_list table provides call restrictions (black lists) and allowances (white lists) for existing phones.

Table 41   bw_list_data.txt Fields

Column Name	Description	Value
BW_LIST_ID	This refers to a unique identification number for the record.	Integer
CODE_BW_LIST_TYPE_ID	This determines whether the record should be on a blacklist or whitelist. This is linked to the CODE_BW_LIST_TYPE table. 1 - blacklist 2- whitelist	Integer
PATTERN_ID	This refers to the Configuring patterns table.	Integer
CALL_DIRECTION_ID	This refers to the direction of the record. This is linked to the CALL_DIRECTIONS table. 1 - outgoing 2- incoming	Integer

Add one row for each black or white list. For example:

```
BW_LIST_ID|CODE_BW_LIST_TYPE_ID|PATTERN_ID|CALL_DIRECTION_ID
1|1|1|1
2|1|2|2
```

Configuring code_feature_type

The code_feature_type table provides a list of all of the calling features available for a network.

Table 42 code_feature_type_data.txt Fields

Column Name	Description	Value
CODE_FEATURE_TYPE_ID	A unique identification number for the calling feature.	Integer
CODE_FEATURE_NAME	The name for a specific calling feature.	String
ACCESS_CODE	The default access code to be dialed for a specific feature (for example, *88)	String
SORT_ORDER	Not currently used.	N/A

Configure the default for example:

```
CODE_FEATURE_TYPE_ID|CODE_FEATURE_NAME|ACCESS_CODE|
SORT_ORDER
1|Call Forward Busy|*74|1
2|Call Forward Ring No Answer|*76|2
3|Voice Mail Address||11
4|Call Forward Universal|*72|3
5|Calling Name Delivery||5
6|Enable Call Identity Per Call|*82|7
7|Call Identity Suppression Universal||6
8|Speed Dial||9
9|Voice Mail Indicator||10
10|Calling Number Delivery||4
11|Disable Call Identity Per Call|*67|8
```

Configuring cos_elm   The cos_elm table provides a list of all of the Class of Service elements available to configure Class of Services. The elements contain the patterns that determine what types of calls an end user is allowed to place and receive.

Table 43   cos_elm_data.txt Fields

Column Name	Description	Value
COS_ELM_ID	A unique identification number for the Class of Service element.	Integer
COS_ELM_NAME	The name of a specific Class of Service element.	String
FLAGS	This sets whether or not you can delete default values from the web provisioning GUI. 1—cannot delete 2—can delete	Integer

Add one row for each Class of Service element:

```
|COS_ELM_ID|COS_ELM_NAME|FLAGS
1|Internal|1|
2|Diagnostic|2|
3|Local|2|
4|Operator|2|
5|International|2|
```

Configuring cos_elm_pattern _map   The cos_elm_pattern_map table provides a list of all of the Class of Service elements to pattern mappings.

Table 44   cos_elm_pattern_map_data.txt Fields

Column Name	Description	Value
COS_ELM_PATTERN_MAP_ID	A unique identification number for the Class of Service element to pattern mapping.	Integer
COS_ELM_ID	A unique identification number for the Class of Service element.	Integer
PATTERN_ID	A unique identification number for the Class of Service element pattern	Integer

Add one row for each Class of Service element to pattern mapping:

```
|COS_ELM_PATTERN_MAP_ID|COS_ELM_ID|PATTERN_ID
1|1|100|
2|1|101|
3|1|102|
```

Configuring cos_name

The cos_name table provides a list of all of the Class of Service names and is used to configure trunk to trunk calling.

Table 45   cos_name_data.txt Fields

Column Name	Description	Value
COS_NAME_ID	A unique identification number for the Class of Service.	Integer
COS_NAME	The name for a specific Class of Service.	String
TRUNK_TO_TRUNK	A unique identification number for the Class of Service element pattern. This is linked to the CODE_BW_LIST_TYPE table. 1 - blacklist (Trunk to Trunk is disabled) 2 - whitelist (Trunk to Trunk enabled)	Integer
FLAGS	This sets whether or not you can delete default values from the web provisioning GUI. 1—cannot delete 2—can delete	Integer

Add one row for each Class of Service:

```
|COS_NAME_ID|COS_NAME|TRUNK_TO_TRUNK|FLAGS
1|Default Class Of Service|2|2|
```

Configuring cos_name_elm_map

The cos_name_elm_map table provides a list of all of the elements associated with each Class of Service and configures whether or not an end user is allowed to received and/or place certain types of calls.

Table 46 cos_name_elm_map_data.txt Fields

Column Name	Description	Value
COS_NAME_ELM_MAP_ID	A unique identification number for the Class of Service to element mapping.	Integer
COS_NAME_ID	A unique identification number for the Class of Service.	Integer
COS_ELM_ID	A unique identification number for the Class of Service element.	Integer
INBOUND_CALLS	Indicates whether or not the element in this Class of Service is allowed to be received. This is linked to the CODE_BW_LIST_TYPE table. 1 - blacklist (inbound calls not allowed) 2 - whitelist (inbound calls allowed)	Integer
OUTBOUND_CALLS	Indicates whether or not the element in this Class of Service is allowed to be placed. This is linked to the CODE_BW_LIST_TYPE table. 1 - blacklist (outbound calls not allowed) 2 - whitelist (outbound calls allowed)	Integer

Add one row for each element to Class of Service mapping and indicated whether or not each element is allowed to be either received or placed:

```
|COS_NAME_ELM_MAP_ID|COS_NAME_ID|COS_ELM_ID|INBOUND_CALLS|OU
TBOUND_CALLS
1|1|1|2|2|
2|1|2|2|2|
```

Configuring dial_plan   The dial_plan table provides a list of all of the configured phone numbers (or groups of phone numbers) which makes it so an end user do not have to dial the OK button on their phone to place a call.

Table 47   dial_plan_data.txt Fields

Column Name	Description	Value
DIAL_PLAN_ID	A unique identification number for the Dial Plan.	Integer
DIAL_PLAN_NAME	The name for a specific Dial Plan.	String

Add one row for each dial plan:

```
|DIAL_PLAN_ID|DIAL_PLAN_NAME
1|Internal|
2|Diagnostic|
3|Local|
4|Operator|
```

Configuring dial_plan_rule_map   The dial_plan_rule_map table provides a mapping of each dial plan and dial rule.

Table 48   dial_plan_rule_map_data.txt Fields

Column Name	Description	Value
DIAL_PLAN_ID	A unique identification number for the Dial Plan.	Integer
DIAL_RULE_ID	A unique identification number for the Dial Rule.	Integer

Add one row for each dial plan to dial rule mapping:

```
|DIAL_PLAN_ID|DIAL_RULE_ID
1|1|
1|2|
```

Configuring dial_rule   The dial_rule table provides a list of all of the dial rules, which are used to configure dial plans.

Table 49   dial_rule_data.txt Fields

Column Name	Description	Value
DIAL_RULE_ID	A unique identification number for the Dial Rule.	Integer
DIAL_RULE_NAME	The name for a specific Dial Rule.	String
MIN_LENGTH	The minimum number of digits in a phone number an end user must dial before a call is placed automatically.	Integer
MAX_LENGTH	The maximum number of digits in a phone number an end user must dial before a call is placed automatically.	Integer
TIMEOUT	This indicates the number of seconds a phone waits for another digit to be dialed before it places a call.	Integer
PATTERN_VALUE	This is a defined string of numbers. When the defined string of numbers dialed matches a configured pattern, the phone number being dialed is automatically placed once the configured Timeout expires and as long as it is within the range of the configured length.	Integer

Add one row for each dial rule:

```
|DIAL_RULE_ID|DIAL_RULE_NAME|MIN_LENGTH|MAX_LENGTH|TIMEOUT|P
ATTERN_VALUE
1|Zero|1|1|5|0|
2|One|3|3|5|1|
3|Two|3|3|5|2|
4|Alternate Long|9|64|5|9101|
```

Configuring elin   The elin table provides a list of all Emergency Line ID Numbers.

Table 50   elin_data.txt Fields

Column Name	Description	Value
ELIN_ID	A unique identification number for the ELIN.	Integer
ELIN	Emergency Location Identification Number	Integer
ASSOC_RELEASE_TIMER	the amount of time you want to leave the ELIN associated to the emergency caller. This number is entered as a string in hours and the range is 1 through 24. This association is used to callback the emergency caller. After the configured time expires, the association between the emergency caller and ELIN is dropped. In case an ELIN is not in use, it can be assigned to a new emergency caller and the association with an older emergency caller is overwritten with the association of the new emergency caller.	Integer
USAGE_RELEASE_TIMER	The maximum amount of time you want to allow the ELIN to remain in use. This number is entered as a string in hours and the range is 1 through 24. Normally, an ELIN is freed when the emergency caller goes on-hook before the emergency service provider goes on-hook, otherwise, the ELIN is kept in use for the duration of this timer.	Integer
USAGE_STATE	Determines whether or not the ELIN is in use.	Integer

Add one row for each ELIN:

```
|ELIN_ID|ELIN|ASSOC_RELEASE_TIMER|USAGE_RELEASE_TIMER|USAGE_
STATE
1|5551212|5|5|1
```

Configuring elin_selection_algo   This table is not currently used.

Configuring erl   The erl table provides a list of all Emergency Response Locations.

Table 51   erl_data.txt Fields

Column Name	Description	Value
ERL_ID	A unique identification number for the ERL.	Integer
ERL	Geographic location or descriptive title for ERL.	String
EMER_NOTIF_CALLBACK _PHONE	The phone number of the contact person responsible for emergency situations within an organization (for example, a security guard).	String

Add one row for each ERL:

```
|ERL_ID|ERL|EMER_NOTIF_CALLBACK_PHONE
1|Chicago 1st Floor|5551212
```

Configuring erl_direct   The erl_direct table provides a list of all direct Emergency Response Locations.

Table 52   elin_direct_data.txt Fields

Column Name	Description	Value
ERL_DIRECT_IP_ID	A unique identification number for the each direct Emergency Response Location.	Integer
IP_ADDRESS	IP address of gateway belonging to the ERL	IP address string xxx.xxx.xxx.xxx
ERL_ID	A unique identification number for the ERL.	Integer

Add one row for each direct ERL:

```
|ERL_DIRECT_IP_ID|IP_ADDRESS|ERL_ID
1|10.10.10|1
```

Configuring erl_elin_map

The erl_elin_map table provides a mapping of each Emergency Response Location with all Emergency Line ID Numbers.

Table 53 erl_elin_map_direct_data.txt Fields

Column Name	Description	Value
ERL_ELIN_MAP_ID	A unique identification number for each mapping of an ELIN to a ERL.	Integer
ELIN_ID	A unique identification number for the ELIN.	Integer
ERL_ID	A unique identification number for the ERL.	Integer

Add one row for each ERL to ELIN mapping:

```
|ERL_ELIN_MAP_ID|ELIN_ID|ERL_ID
1|1|1
2|2|4
```

Configuring erl_es_number_map

The erl_es_number_map table provides a mapping of each Emergency Response Location with all Emergency Line ID Numbers.

Table 54 elin_direct_data.txt Fields

Column Name	Description	Value
ERL_ES_NUMBER_ID	A unique identification number for each mapping of an ELIN to a ERL.	Integer
ERL_ID	A unique identification number for the ERL.	Integer
ES_NUMBER_ID	A unique identification number for each ES (Emergency Service).	Integer

Add one row for each ERL to Emergency Service mapping:

```
|ERL_ES_NUMBER_ID|ERL_ID|ES_NUMBER_ID
1|1|1
2|2|4
```

Configuring es_contact

```
This is a runtime table that is populated by the
authentication server so there is no data uploading required.
```

Configuring es_defaults   The es_defaults table provides default values for the emergency services. Emergency defaults are used when there is no information in the emergency response database for an emergency caller (phone IP address). Typically, phone IP addresses are stored within ranges for a defined ERL.

Table 55   es_defaults_data.txt Fields

Column Name	Description	Value
ES_DEFAULTS_ID	A unique identification number for each mapping of an ELIN to a ERL.	Integer
NULL_ERL_IP	The IP address of a system-wide emergency gateway.	IP address string xxx.xxx.xxx.xxx
NULL_ERL_CALLBACK_PHONE	The default phone number of the contact person responsible for emergency situations within the organization (for example, a security guard).	Integer

Add one row for each Emergency Service default:

```
|ES_DEFAULTS_ID|NULL_ERL_IP|NULL_ERL_CALLBACK_PHONE
1|10.10.10.125|8475551213
```

Configuring es_number   The es_number table provides the dialed numbers to be considered as emergency numbers.

Table 56   es_number_data.txt Fields

Column Name	Description	Value
ES_NUMBER_ID	A unique identification number for each ES (Emergency Service) number.	Integer
ES_NUMBER	The phone number(s) of the contact person responsible for emergency situations within the organization (for example, a security guard).	Integer

Add one row for each Emergency Service number:

```
|ES_NUMBER_ID|ES_NUMBER
1|8475551213
```

Configuring feature_uri_info

The feature_uri table provides actual data for the feature for a particular URI address (for example, the actual address and timeout value).

Table 57 feature_uri_info_data.txt Fields

Column Name	Description	Value
FEATURE_URI_INFO_ID	A unique identification number for the calling feature URI.	Integer
URI_ACCESS_CODE_ID	This refers to the actual address code for a particular feature.	Integer
ADDRESS	This refers to the actual address of a phone (for example, call forwarding address).	Phone Address
TIMEOUT	This refers to the timeout, in seconds, after a specific feature can be activated.	Integer
NAME	This refers to a unique, user-friendly name for this feature record.	String
BUSY_LAMP_FIELD	Indicates whether or not the busy lamp indicator is enabled for a speed dial. Allows end user to see whether phone mapped to speed dial is busy. Lamp light will be on when mapped phone is busy. 1 - enabled null - disabled	Integer

Add one row for each feature URI. For example:

```
FEATURE_URI_INFO_ID|URI_ACCESS_CODE_ID|ADDRESS|TIMEOUT|NAME|
BUSY_LAMP_FIELD
1|1|sip:jdoe@3com.com|60|||
2|2|sip:manager@3com.com|60|||
```

Configuring patterns   The patterns table is a global repository for all patterns.

Table 58   patterns_data.txt Fields

Column Name	Description	Value
PATTERN_ID	A unique identification number for the pattern.	Integer
PATTERN	This is the pattern value. It can contain a wild card (*), but only one or zero. If a * is present, it should be the last character in the pattern value.	String

Add one row for each pattern. For example:

```
PATTERN_ID|PATTERN
0|*
1|353*
2|3531*
```

Configuring persons   The persons table contains the list of persons (end-users).

Table 59   persons_data.txt Fields

Column Name	Description	Value
PERSON_ID	This is a unique identification number for the person.	Integer
TITLE	This is the title of the person.	String
FIRST_NAME	This is the first name assigned to the person.	String
MIDDLE_NAME	This is the middle name assigned to the person.	String
LAST_NAME	This is the last name assigned to the person.	String
STREET1	This is the street address assigned to the person.	String
STREET2	This is additional space for the address assigned to the person.	String
CITY	This is the city assigned to the person.	String
PROVINCE_STATE	This is the state or province assigned to the person.	String
POSTAL_CODE	The postal code assigned to the person.	String
BIRTH_DATE	The birth date of the assigned person.	String
DATE_CREATED	Date when record was created.	String

(continued)

Table 59   persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY	Indicates the country code.	Integer
	1 – Afghanistan	
	2 – Albania	
	3 – Algeria	
	4 – American Samoa	
	5 – Andorra	
	6 – Angola	
	7 – Anguilla	
	8 – Antigua	
	9 – Argentina	
	10 – Armenia	
	11 – Aruba	
	12 – Ascension Island	
	13 – Australia	
	14 – Austria	
	15 – Azerbaijan	
	16 – Bahamas	
	17 – Bahrain	
	18 – Bangladesh	
	19 – Barbados	
	20 – Barbuda	
	21 – Belarus	
	22 – Belgium	
	23 – Belize	
	24 – Benin	
	25 – Bermuda	
	26 – Bhutan	
	27 – Bolivia	
	28 – Bosnia and Herzegovina	
	29 – Botswana	
	30 – Brazil	
	31 – British Virgin Islands	

(continued)

Table 59   persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	32 – Brunei	Integer
	33 – Bulgaria	
	34 – Burkina Faso	
	35 – Burundi	
	36 – Cambodia	
	37 – Cameroon	
	38 – Canada	
	39 – Cape Verde Islands	
	40 – Cayman Islands	
	41 – Central African Republic	
	42 – Chad	
	43 – Chile	
	44 – China	
	45 – Christmas Island	
	46 – Cocos-Keeling Islands	
	47 – Colombia	
	48 – Comoros	
	49 – Congo	
	50 – Congo, Democratic Republic of the	
	51 – Cook Islands	
	52 – Costa Rica	
	53 – Cote d'Ivoire	
	54 – Croatia	
	55 – Cuba	
	56 – Cyprus	
	57 – Czech Republic	
	58 – Denmark	
	59 – Diego Garcia	
	60 – Djibouti	
	61 – Dominica	
	62 – Dominican Republic	
	63 – Ecuador	

(continued)

Table 59 persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	64 – Egypt	Integer
	65 – El Salvador	
	66 – Equatorial Guinea	
	67 – Eritrea	
	68 – Estonia	
	69 – Ethiopia	
	70 – F.Y.R.O.M. (Former Yugoslav Republic of Macedonia)	
	71 – Falkland Islands (Islas Malvinas)	
	72 – Faroe Islands	
	73 – Fiji Islands	
	74 – Finland	
	75 – France	
	76 – French Antilles	
	77 – French Guiana	
	78 – French Polynesia	
	79 – Gabon	
	80 – Gambia	
	81 – Georgia	
	82 – Germany	
	83 – Ghana	
	84 – Gibraltar	
	85 – Greece	
	86 – Greenland	
	87 – Grenada	
	88 – Guadeloupe	
	89 – Guam	
	90 – Guantanamo Bay	
	91 – Guatemala	
	92 – Guinea	
	93 – Guinea-Bissau	

(continued)

Table 59 persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	94 – Guyana	Integer
	95 – Haiti	
	96 – Honduras	
	97 – Hong Kong S.A.R.	
	98 – Hungary	
	99 – Iceland	
	100 – India	
	101 – Indonesia	
	102 – Iran	
	103 – Iraq	
	104 – Ireland	
	105 – Israel	
	106 – Italy	
	107 – Jamaica	
	108 – Japan	
	109 – Jordan	
	110 – Kazakhstan	
	111 – Kenya	
	112 – Kiribati	
	113 – Korea (North)	
	114 – Korea (Republic of)	
	115 – Kuwait	
	116 – Kyrgyzstan	
	117 – Laos	
	118 – Latvia	
	119 – Lebanon	
	120 – Lesotho	
	121 – Liberia	
	122 – Libya	
	123 – Liechtenstein	
	124 – Lithuania	
	125 – Luxembourg	

(continued)

Table 59   persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	126 – Macau S.A.R.	Integer
	127 – Madagascar	
	128 – Malawi	
	129 – Malaysia	
	130 – Maldives	
	131 – Mali	
	132 – Malta	
	133 – Marshall Islands	
	134 – Martinique	
	135 – Mauritania	
	136 – Mauritius	
	137 – Mayotte Island	
	138 – Mexico	
	139 – Micronesia, Federated States of	
	140 – Moldova	
	141 – Monaco	
	142 – Mongolia	
	143 – Montserrat	
	144 – Morocco	
	145 – Mozambique	
	146 – Myanmar	
	147 – Namibia	
	148 – Nauru	
	149 – Nepal	
	150 – Netherlands	
	151 – Netherlands Antilles	
	152 – New Caledonia	
	153 – New Zealand	
	154 – Nicaragua	
	155 – Niger	
	156 – Nigeria	
	157 – Niue	

(continued)

Table 59 persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	158 – Norfolk Island	Integer
	159 – Norway	
	160 – Oman	
	161 – Pakistan	
	162 – Palau	
	163 – Panama	
	164 – Papua New Guinea	
	165 – Paraguay	
	166 – Peru	
	167 – Philippines	
	168 – Poland	
	169 – Portugal	
	170 – Puerto Rico	
	171 – Qatar	
	172 – Reunion Island	
	173 – Romania	
	174 – Rota Island	
	175 – Russia	
	176 – Rwanda	
	177 – Saint Lucia	
	178 – Saipan Island	
	179 – Samoa	
	180 – San Marino	
	181 – Sao Tome and Principe	
	182 – Saudi Arabia	
	183 – Senegal Republic	
	184 – Seychelles	
	185 – Sierra Leone	
	186 – Singapore	
	187 – Slovakia	
	188 – Slovenia	
	189 – Solomon Islands	

(continued)

Table 59 persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	190 – Somalia	Integer
	191 – South Africa	
	192 – Spain	
	193 – Sri Lanka	
	194 – St. Helena	
	195 – St. Kitts and Nevis	
	196 – St. Pierre and Miquelon	
	197 – St. Vincent and the Grenadines	
	198 – Sudan	
	199 – Suriname	
	200 – Swaziland	
	201 – Sweden	
	202 – Switzerland	
	203 – Syria	
	204 – Taiwan	
	205 – Tajikistan	
	206 – Tanzania	
	207 – Thailand	
	208 – Tinian Island	
	209 – Togo	
	210 – Tokelau	
	211 – Tonga	
	212 – Trinidad and Tobago	
	213 – Tunisia	
	214 – Turkey	
	215 – Turkmenistan	
	216 – Turks and Caicos Islands	
	217 – Tuvalu	
	218 – Uganda	
	219 – Ukraine	
	220 – United Arab Emirates	
	221 – United Kingdom	

(continued)

Table 59 persons_data.txt Fields (continued)

Column Name	Description	Value
CODE_CTRY (cont.)	222 – United States of America	Integer
	223 – United States Virgin Islands	
	224 – Uruguay	
	225 – Uzbekistan	
	226 – Vanuatu	
	227 – Vatican City	
	228 – Venezuela	
	229 – Vietnam	
	230 – Wallis and Futuna Islands	
	231 – Yemen	
	232 – Yugoslavia	
	233 – Zambia	
	234 – Zimbabwe	
WEBLOGIN	This creates an access login account for user, which can be used for web access in the Calling Features User Interface. This is used with the WEBPASSWORD.	String
WEBPASSWORD	The creates a special access password for the user to access his/her account in the Calling Features User Interface. Can be used from the web or when contacting phone support.	String

Add one row for each person. For example:

```
PERSON_ID|TITLE|FIRST_NAME|MIDDLE_NAME|LAST_NAME|STREET1|STR
EET2|CITY|PROVINCE_STATE|POSTAL_CODE|BIRTH_DATE|
DATE_CREATED|CODE_CTRY|WEBLOGIN|WEBPASSWORD
1|Mr|John|J|Doe|Elm
Street|None|Chicago|IL|60128|2-JAN-1970|24-JAN-2003|
222|JOHNDOE|123456789|
```

Configuring person_uri_map

The person_uri_maps table maps the URI with to the end user.

Table 60   person_uri_map_data.txt Fields

Column Name	Description	Value
URI_ID	A unique identification number of the URI.	Integer
PERSON_ID	A unique identification number for the person (end user).	Integer

Add one row for each URI to end user mapping. For example:

```
|URI_ID|PERSON_ID
1009|1001|
1|1|
3|1|
2|1|
```

Configuring selective_ringing

The selective_ringing table contains the configuration for assigning specific ringtones to specific URIs.

Table 61   selective_ringing_data.txt Fields

Column Name	Description	Value
SELECTIVE_RING_ID	A unique identification number for the ring tone applied to a URI.	Integer
URI_ID	A unique identification number for the URI.	Integer
URI_VALUE	The URI that the selective ring tone will be applied to.	String
CODE_RING_TONE_ID	A unique identification number for the ring tone. 1 - normal 2 - busy 3 - ringtone	Integer

Modify the data row for each selective ring tone. For example:

```
|SELECTIVE_RING_ID|URI_ID|URI_VALUE|CODE_RING_TONE_ID
1|4|8475551212|1|
```

Configuring server_configuration

The server_configuration table contains the configuration for the call park feature.

Table 62   server_configuration_data.txt Fields

Column Name	Description	Value
SERVER_CONFIGURATION_ID	A unique identification number for the call park configuration.	Integer
CALL_PARK_START	The number to begin call sessions for calls being parked. **Note**: 3Com recommends the start number to be 800.	Integer
CALL_PARK_END	The number to end call sessions for calls being parked. **Note**: 3Com recommends the end number to be 899.	Integer
CALL_PARK_TIMEOUT	The number of seconds a call session is kept active for a parked call before the session is terminated.	Integer

Modify the data row for the call park configuration. For example:

```
|SERVER_CONFIGURATION_ID|CALL_PARK_START|CALL_PARK_END|
CALL_PARK_TIMEOUT
1|800|899|3600|
```

Configuring support_profiles

The support_profiles table contains support point of contact.

Table 63   support_profiles_data.txt Fields

Column Name	Description	Value
SUPPORT_PROFILE_ID	A unique identification number for the support profile.	Integer
SUPPORT_URI	A unique support URI such as a service phone number.	String

Add one row for each support profile. For example:

```
SUPPORT_PROFILE_ID|SUPPORT_URI
1|1847999999
2|3531999999
```

Configuring tos_feature_map

The tos_feature_map table contains the configuration for assigning specific ringtones to specific URIs.

Table 64 tos_feature_map_data.txt Fields

Column Name	Description	Value
TOS_ID	A unique identification number for the Type of Service.	Integer
CODE_FEATURE_TYPE _ID	A unique identification number for the phone feature. 1 - Call Forward Busy 2 - Call Forward Ring No Answer 3 - Voice Mail Address 4 - Call Forward Universal 5 - Calling Name Delivery 6 - Enable Call Identity Per Call 7 - Call Identity Suppression Universal 8 - Speed Dial 9 - Voice Mail Indicator 10 - Calling Number Delivery 11 - Disable Call Identity Per Call 12 - Call Waiting Toggle code 13 - Directed call pickup	Integer
ACCESS_CODE	Access code that the end user must dial in order to have the phone feature work.	3 Characters
TIMEOUT	N/A	N/A
ADDRESS	N/A	N/A
TOS_FATURE_MAP_ID	A unique identification number for the feature that the Type of Service contains.	Integer

Modify the data row for each feature to Type of Service mapping. For example:

```
TOS_ID|CODE_FEATURE_TYPE_ID|ACCESS_CODE|TIMEOUT|ADDRESS|TOS_
FATURE_MAP_ID
1|3||0||70|
1|1|*74|0||10|
```

Configuring tos_name   The tos_name table contains the configuration for assigning specific ringtones to specific URIs.

Table 65   tos_name_data.txt Fields

Column Name	Description	Value
TOS_ID	A unique identification number for the Type of Service.	Integer
TOS_NAME	The name assigned to the Type of Service.	String

Modify the data row for each Type of Service. For example:

```
|TOS_ID|TOS_NAME
1|Default type Of Service|
```

Configuring trans_src_dest   The trans_src_dest table contains the rules for the destination and source based translation.

Table 66   trans_src_dest_data.txt Fields

Column Name	Description	Value
TRANS_SRC_DEST_ID	A unique identification number for the translation source destination.	Integer
TRANS_GROUP_ID	This refers to a unique translation group identification number that is associated with this translation source destination, which is located in the trans_group_data table.	String
SRC_PATTERN_ID	This refers to a unique source pattern identification number that is associated with this translation source destination, which is located in the patterns_data table.	Integer
DEST_PATTERN_ID	This refers to a unique destination pattern identification number that is associated with this translation source destination, which is located in the patterns_data table.	Integer
RESULT_PATTERN_ID	This refers to a unique result pattern identification number that is associated with this translation source destination, which is located in the patterns_data table.	Integer

Add one row for each translations source destination. For example:

```
TRANS_SRC_DEST_ID|TRANS_GROUP_ID|SRC_PATTERN_ID|
DEST_PATTERN_ID|RESULT_PATTERN_ID
1|1|53|3|53
2|1|4|5|6|
```

Configuring trusted_clients

The trusted_clients_profiles table holds all the trusted clients for the server. Any application using the BES client library that wishes to connect to the BES server must be listed in this table.

Table 67   trusted_clients_data.txt Fields

Column Name	Description	Value
CLIENT_ID	A unique identification number for the client.	Integer
CLIENT_NAME	The name assigned to the client.	String
IP_ADDRESS	IP address of the network order.	x.x.x.x
IP_PORT	The IP Port number. A zero value is a wildcard that matches any port for the IP address.	Integer
DNS_NAME	This a a name of a fully qualified domain name.	String
RADIUS_SECRET	Not used.	N/A

Add one row for each trusted client. For example:

```
|CLIENT_ID|CLIENT_NAME|IP_ADDRESS|IP_PORT|DNS_NAME|
RADIUS_SECRET
3|GK4|152.67.61.52|1025|||
2|Chicago PC|0.0.0.0|0|chicago pc||
```

Configuring uri_access_code

The uri_access_code table defines access codes for particular features of specific URI addresses (for example, end users can set the access code for the call forwarding number for their home).

Table 68 feature_uri_info_data.txt Fields

Column Name	Description	Value
URI_ACCESS_CODE_ID	A unique identification number for the access code.	Integer
URI_ID	This refers to the URI record for which this specific access code is redefined.	Integer
CODE_FEATURE_TYPE_ID	This refers to the feature type ID, as referenced in Configuring code_feature_type.	Integer
ACCESS_CODE	This refers to the actual access code; this access code overrides the default access code from the Configuring code_feature_type table.	Access Code
CODE_FEATURE_STATUS_ID	This field allows the administrator to either enable or disable a particular feature. 1 - Feature enabled 0 - Feature disabled	Integer

Add a row for each new access code. For example:

```
URI_ACCESS_CODE_ID|URI_ID|CODE_FEATURE_TYPE_ID|
ACCESS_CODE|CODE_FEATURE_STATUS_ID
1|1|1|*70|1
2|1|2|*71|1
3|1|3||1
4|1|4|*73|1
```

Configuring uri_bw_list_map

The uri_bw_list_map table links a particular URI address to its black or white list (call restriction).

Table 69   uri_bw_list_map_data.txt Fields

Column Name	Description	Value
URI_ID	Not supported by 3Com.	N/A
BW_LIST_ID	This refers back to the Configuring bw_list table.	Integer
LIST_ADDED_BY	This field shows who added this black/white list. Either the Administrator or the End User can add a phone restriction. Phone restrictions added by the Administrator cannot be seen by the end user.	Integer

Add a row for each call restriction. For example:

```
URI_ID|BW_LIST_ID|LIST_ADDED_BY
1|1|0
1|2|0
1|3|1
2|4|1
2|3|1
2|2|0
```

Configuring uri_feature_map

The uri_feature_map table contains the mapping between a calling feature and the URI.

Table 70   uri_feature_map_data.txt Fields

Column Name	Description	Value
URI_ID	A unique identification number for the URI.	Integer
CODE_FEATURE_TYPE_ID	A unique identifier for each type of calling feature. 1-Call Forward Busy 2-Call Forward Ring No Answer 3-Voice Mail Address 4-Call Forward Universal 5-Calling Name Delivery 6-Enable Call Identity Per Call 7-Call Identity Suppression Universal 8-Speed Dial 9-Voice Mail Indicator 10-Calling Number Delivery 11-Disable Call Identity Per Call	Integer

Add one row for each calling features to URI translation mapping. For example:

```
|URI_ID|CODE_FEATURE_TYPE_ID
4|8|
1|1|
1|2|
```

Configuring uri_sip_phone_profile   The uri_sip_phone_profile table contains the URI SIP phone configuration.

Table 71   uri_sip_phone_profile_data.txt Fields

Column Name	Description	Value
URI_ID	A unique identification number for the URI.	Integer
DEFAULT_DIALING_DOMAIN	Domain of the network the phone is on	Domain String
REGISTRATION_INTERVAL	How often a registration message is sent to server to see if it is active.	Integer
REGISTRATION_REQUIRED	Whether or not registration to be enabled.	Integer
OUTBOUND_PROXY_IP	IP address of the out bound proxy.	IP Address
OUTBOUND_PROXY_DNS	DNS of the out bound proxy.	String
OUTBOUND_PROXY_PORT	Port number of the out bound proxy.	String
DISPLAY_NAME	The name to be displayed on the phone's LED.	Integer
NUMBER_OF_LINES	The number of lines on the phones, varies by type of phone.	Integer
RINGTONE_DOMAIN_CALL_ID	The type of ring tone you want to hear for phone calls within your network domain, which use Caller ID.	Integer
RINGTONE_ANONYMOUS_CALL_ID	The type of ring tone you want to hear from anonymous phone calls.	Integer
RINGTONE_OTHER_CALL_ID	The type of ring tone you want to hear for phone calls outside your network domain, which use Caller ID.	Integer

(continued)

Table 71   uri_sip_phone_profile_data.txt Fields (continued)

Column Name	Description	Value
MUSIC_ON_HOLD_SERVER	Address of the Music on Hold server.	String
CODE_TIME_ZONE_ID	Time zone of where the server is located.	Integer
VM_PILOT_ADDRESS	Address of the voice mail server, where your phone connects to so you can hear your voice mail messages. For example, voicemail.3com.com.	Domain String
COS_NAME_ID	Class of Service you want to associate with each URI. The COS_NAME_ID is found in the COS_NAME_DATA.txt table.	Integer
TOS_NAME_ID	Type of Service you want to associate with each URI. The TOS_NAME_ID is found in the TOS_NAME_DATA.txt table.	Integer
DIAL_PLAN_ID	Dial Plan you want to associate with each URI. The COS_NAME_ID is found in the DIAL_PLAN_DATA.txt table.	Integer
CALL_CENTER_NAME	Name you want to assign to Call Center to identify it.	String
DISPLAY_TIME_FORMAT	Determines how to format the time display on a phone. MMM dd hh:mm a MMM dd HH:mm MM dd HH:mm MM dd hh:mm a dd MMM HH:mm dd MMM hh:mm a dd MM HH:mm dd MM HH:mm a	Specified Value

Add one row for each URI SIP phone configuration. For example:

```
|URI_ID|DEFAULT_DIALING_DOMAIN|REGISTRATION_INTERVAL|
REGISTRATION_REQUIRED|OUTBOUND_PROXY_IP|OUTBOUND_PROXY_DNS|O
UTBOUND_PROXY_PORT|DISPLAY_NAME|NUMBER_OF_LINES|
RINGTONE_DOMAIN_CALL_ID|RINGTONE_ANONYMOUS_CALL_ID|
```

```
RINGTONE_OTHER_CALL_ID|MUSIC_ON_HOLD_SERVER|
CODE_TIME_ZONE_ID|VM_PILOT_ADDRESS
1|3com.com|3600|1|172.16.243.100|proxy.3com.com|5060|
sip phone 1|3|3|3|1|music.3com.com|1|vm.3com.com|
4|3com.com|||||5060|John
Test|10|2|1|1|172.16.243.100|1|voicemail.3com.com|
102|domain.com|10|1|172.16.243.100|proxy name|5060|Display
name|10|3|2|1|music on hold server|2|voice mail server|
```

Configuring uri_speed_dial

The uri_speed_dial table contains the rules for a personal speed dial.

Table 72 uri_speed_dial_data.txt Fields

Column Name	Description	Value
URI_SPEED_DIAL_ID	A unique identification number for the URI speed dial.	Integer
URI_ID	This refers to a unique URI identification number that is associated with this speed dial, which is located in the URI_services_data table.	Integer
DIALED_URI	This is the short dialed number.	String
RESULT_PATTERN_ID	This refers to a unique result pattern identification number that is associated with this speed dial, which is located in the patterns_data table.	Integer

Add one row for each URI speed dial. For example:

URI_SPEED_DIAL_ID|URI_ID|DIALED_URI|RESULT_PATTERN_ID
1|3|ISP|4

Configuring week_days

The week_days table provides data integrity for day time based rating.

Table 73 week_days_data.txt Fields

Column Name	Description	Value
WEEK_DAY_ID	A unique identification number for the weekday. If this value is then 7, then the rate special date is not mapped to any existing day of week. Usually special days are priced as weekends, but in some cases a service provider can create completely separated price sets.	Integer
WEEK_DAY_NAME	A unique weekday name	String

Add one row for each weekday. For example:

WEEK_DAY_ID|WEEK_DAY_NAME

```
1|Sunday
2|Monday
```

C

MANUALLY CONFIGURING THE DIRECTORY SERVER

3Com recommends configuring the directory server through the provisioning server. See "Configuring the Directory Server" on page 89. This appendix describes the tables used when configuring call routes or other directory server functions in large quantities (in bulk).

Information on how to bulkload data into the authentication server database is provided in "Common Commands" on page 315.

Manually Configuring a Call Route by Bulk Loading

Use the text files in the */opt/3com/VCX/dir/db/cwdir/bulkload* folder to indirectly edit the data in the databases and provision a call route.

To configure a call route through bulk loading:

1 If the Destination URI requires translation, a URI translation must be added.

  a Verify that the required record is in the supporting tables. The supporting tables include the requestors, day_time_bands, week_day_bands, date_time_bands, holidays, and patterns table.

  b Add the match pattern ID and translation string to the desturi_translation table.

2 Add an end point. Go to the "Configuring ep_data.txt" section for more information. Be sure to look at Table 83 for information on which fields must be filled out.

  a If the end point needs an associated black list, then a record to the ep_blist_map table. The black list pattern must be in the patterns table.

  b If the end point needs an associated white list, then a record to the ep_wlist_map table. The white list pattern must be in the patterns table.

c If the end point needs an associated out dial pattern, then a record to the ep_outdial_map table.

3 Add a route to the route table.

4 Associate the end points by adding records to the route_ep_map table.

a If the route to end point combination has an out dial pattern, then add the record to the route_ep_outdial_map table.

5 Associate the Destination URI to the route. The destination URI (DNIS string) pattern must be associated with the route by adding the records to the route_ep_map table.

6 Verify that all required records are in the supporting tables, if they are going to be used. The supporting tables include the requestors, day_time_bands, week_day_bands, date_time_bands, holidays, and patterns table.

a Add a destination URI pattern and route ID to the desturi_route_map table.

b To black list a specific destination URI, route, end point combination then add a record to the desturi_route_ep_blacklist table.

Load or append data from these text files to a database table using the besbulkload.pl script.

Configuring Load Balancing

The directory servers and gateways work together to balance the call load. The call load is balanced based on how the directory servers and gateways are provisioned.

Enabling and Disabling Load Balancing

Using Enterprise Management Suite you can determine whether the call load is distributed across the gateways based on gateway call volume (reported by the gateways) or gateway (established at the directory server).

- When load balancing is enabled on the gateway, the call load is distributed across the multiple gateways based on gateway call volume.

- When load balancing is disabled on the gateway, the appropriate gateway is chosen based on priority assigned in the route. Load balancing is provisioned for a route in the "Configuring route_data.txt" file under "CODE_ROUTE_SORT_POLICY".

| **Directory Server Database Table Descriptions** | This section provides information on each directory server database table and their associated fields. |

Configuring datetime_bands _data.txt

The datetime_bands table is used as an input parameter for URI translation and destination URI routing. The start and end times are based on calendar times, which include the year, month, day, hour, minute, and second.

Table 74   datetime_bands.txt Fields

Column Name	Description	Value
DATETIME_BAND_ID	A unique identification number for the date time band.	Integer
DATETIME_BAND_NAME	A unique description for the date time band	String
START_TIME	The start time of the date time band, type as an Oracle date.	Date
END_TIME	The end time of the date time band, type as an Oracle date.	Date

Add one row for each user date time band. For example:

```
|DATETIME_BAND_ID|DATETIME_BAND_NAME|START_TIME|END_TIME
1|Year 2001|01-JAN-2001 00:00:00|01-JAN-2002 00:00:00|
2|Jun to Nov 2001|01-JUN-2001 00:00:01|01-NOV-2001 12:00:00|
```

Configuring day_time_bands _data.txt

The day_time_bands table is used as an input parameter for URI translation and destination URI routing. A day time band is a time band within one day (i.e. 0800 - 1200 hours), which included the year, month, day, hour, minute, and second.

Table 75   day_time_bands_data.txt Fields

Column Name	Description	Value
DAY_TIME_BAND_ID	A unique identification number for the day time band.	Integer
DAY_TIME_BAND_NAME	A unique description for the day time band	String
START_TIME	The start time of the day time band, type as an Oracle date.	Date
END_TIME	The end time of the day time band, type as an Oracle date.	Date

Add one row for each day time band. For example:

|DAY_TIME_BAND_ID|DAY_TIME_BAND_NAME|START_TIME|END_TIME
```
1|0-12 hours|01-JAN-2001 00:00:00|01-JAN-2001 11:59:59|
2|8-5pm|01-JAN-2001 08:00:00|01-JAN-2001 17:00:00|
```

Configuring week_day_bands _data.txt

The week_day_bands table is used as an input parameter for URI translation and destination URI routing. Weekdays start on Sunday. Each week day band can have multiple records for each day in order to increase performance.

Table 76   week_day_bands_data.txt Fields

Column Name	Description	Value
WEEK_DAY_BAND_ID	This is a unique identification number for the week day band.	Integer
WEEK_DAY_BAND_NAME	This is a unique name for the week day band.	String
CODE_WEEK_DAY	This is the week day code: 1 - Sunday 2 - Monday 3 - Tuesday 4 - Wednesday 5 - Thursday 6 - Friday 7 - Saturday	Integer

Add one row for each week day band. For example:

|WEEK_DAY_BAND_ID|WEEK_DAY_BAND_NAME|CODE_WEEK_DAY
```
1|Sat-Sun|1|
```

Configuring desturi_route_ep _blacklist_map _data.txt	The desturi_route_ep_blacklist_map table shows which end points are blacklisted so that those end points are excluded from routes.

Table 77   desturi_route_ep_blacklist_map_data.txt Fields

Column Name	Description	Value
ID	Number of consecutive black listed end points starting with 1.	Integer
DESTURI_ROUTE_ID	This is a unique destination route identification number, which is found in the desturi_route_map_data table.	Integer
ROUTE_ID	This is a unique route identification number, which is found in the route_data table.	Integer
EP_ID	This is a unique end point identification number, which is found in the ep_data table.	Integer

Add one row for each end point to blacklist from a particular route. For example:

ID|DESTURI_ROUTE_ID|ROUTE_ID|EP_ID
1|1|1|3|
2|4|4|51|

Configuring desturi_route_map _data.txt	The desturi_route_map table creates a login and password for the web provisioning server.

Table 78   desturi_route_map_data.txt Fields

Column Name	Description	Value
DESTURI_ROUTE_ID	This is a unique destination route identification number, which is found in the desturi_route_map_data table.	Integer
ACTIVE	Indicates whether or not the URI route is active. 0 = Not Active 1 = Active	Integer
REQ_INDIR_ID	This is a unique identification number from the requestors_data table for an indirect requestor, which is usually a Tier 1 component such as an H.323 gateway.	Integer
REQ_DIR_ID	This is a unique identification number from the requestors_data table for a direct requestor, which is usually a Tier 2 component such as an gatekeeper or SIP proxy.	Integer

Table 78 desturi_route_map_data.txt Fields (continued)

Column Name	Description	Value
WEEK_DAY_BAND_ID	This is a unique identification number for the week day band, which is located in the week_day_bands_data table.	Integer
DAY_TIME_BAND_ID	This is a unique identification number for the day time band, which is located in the day_bands_data table.	Integer
DATETIME_BAND_ID	This is a unique identification number for the date time band, which is located in the datetime_bands_data table.	Integer
PATTERN_ID	This is a unique pattern identification number, which is found in the pattern_data table.	Integer
ROUTE_ID	This is a unique route identification number, which is found in the route_data table. Route Id to be associated with this destination URI pattern.	Integer
BLACKLISTED	Global blacklist flag for this destination URI and route combination. Allows blacklisting on a destination URI, source input parameters, and route level vice performing blacklisting on the destination endpoint.	Integer
	This provides the same capabilities as a BLOCKED route in the V2.3/MR1.0 releases	
	Indicates whether or not the URI route is blacklisted. 0 = 1 = Yes	

Add one row for each URI destination route. For example:

|DESTURI_ROUTE_ID|ACTIVE|REQ_INDIR_ID|REQ_DIR_ID|HOLIDAY_ID|WE
EK_DAY_BAND_ID|DAY_TIME_BAND_ID|DATETIME_BAND_ID|PATTERN_I
D|ROUTE_ID|BLACKLISTED
1|1|-1|-1|-1|-1|-1|-1|7|20|0|
2|1|-1|-1|-1|-1|-1|-1|17|2|0|

Configuring desturi_translation _data.txt

The desturi_translation table provides destination URI translation based on source input parameters and translation strings.

Understanding Translation Algorithms

This section is provided to help you understand how pattern matching and translation strings are used. The outbound destination URI is translated using the match pattern ID and translation string. The match string is a regular expression that matches the outbound destination URI. The translation string determines how the destination URI is translated. The translation string is specified with a semi-regular expression format. A translation string with an asterisk (*) means perform no translation just use the full destination URI string that matched in the match string. A translation string with pre-pended characters has those characters pre-pended to the translated destination URI.

For example:

Table 79   Destination URI Translation Algorithm

Destination URI	Match String	Translation String	Translated Destination URI	Comments
18472222411	1847*	*	2222411	Strips off the area code
4413012345	44*	*	13012345	Strings off the country code
6302221234	630*	1630*	16302221234	Pre-pends a 1
3125551212	*	*	3125551212	No translation, this is the default
011449622112345	01144*	*	622112345	Strips off the access code and country code

There are five categories of source based input parameters. There is a specific ordering of how these categories are used to determine the resultant output. Database records are returned for the first category that match. The search order is as follows:

- Combination of or separate instances of Direct Requestor, Indirect Requestor, or Holiday

- Holiday only

- Day time band and week day band

- Date Time Band (Calendar Time)

- No source based input parameters

For example, if the source based inputs are Direct Requestor equals "Gatekeeper 2" and Holiday equals "New Years" and there are no combination records for "Gatekeeper 2" and "New Years" but there is a record for "New Years" only then that record is returned.

Table 80   desturi_translation_data.txt Fields

Column Name	Description	Value
DESTURI_TRANS_ID	This is a unique identification number for the unique destination URI translation.	Integer
NAME	This is a unique description given to a URI translation.	String
ACTIVE	Indicates whether or not the destination translation is active. 0 = Not Active 1 = Active	Integer
REQ_INDIR_ID	This is a unique identification number from the requestors_data table for an indirect requestor, which is usually a Tier 1 component such as an H.323 gateway. **Note**: Can be used with the Direct Requestor ID and/or Holiday ID.	Integer
REQ_DIR_ID	This is a unique identification number from the requestors_data table for a direct requestor, which is usually a Tier 2 component such as an gatekeeper or SIP proxy. **Note**: Can be used with the Indirect Requestor ID and/or Holiday ID.	Integer
HOLIDAY_ID	This is a unique identification number for the holiday, which is located in the holidays_data table. **Note**: Can be used with the Direct Requestor ID and/or Indirect Requestor ID.	Integer
WEEK_DAY_BAND_ID	This is a unique identification number for the week day band, which is located in the week_day_bands_data table. **Note**: A week day band must be used with a day time band.	Integer
DAY_TIME_BAND_ID	This is a unique identification number for the day time band, which is located in the day_bands_data table. **Note**: A day time band must be used with a week day band.	Integer

(continued)

Table 80 desturi_translation_data.txt Fields (continued)

Column Name	Description	Value
DATETIME_BAND_ID	This is a unique identification number for the date time band, which is located in the datetime_bands_data table.	Integer
PATTERN_ID	This is the destination URI matching pattern.	String
TRANSLATION_STRING	Determines how the destination URI will be translated.	String

Add one row for each destination URI translation. For example:

|DESTURI_TRANS_ID|NAME|ACTIVE|REQ_INDIR_ID|REQ_DIR_ID|HOLIDAY_
ID|WEEK_DAY_BAND_ID|DAY_TIME_BAND_ID|DATETIME_BAND_ID|PATT
ERN_ID|TRANSLATION_STRING
2|TRAN1|1|-1|-1|-1|-1|-1|-1|2|334*|
3|TRAN2|1|-1|-1|-1|-1|-1|-1|3|5551212|

Configuring ep_blist_map _data.txt

The ep_blist_map table lists an end point's blacklist patterns. Destination URIs must match these patterns, otherwise, they are not allowed.

Table 81 ep_blist_map_data.txt Fields

Column Name	Description	Value
EP_ID	This is a unique end point identification number, which is found in the ep_data table.	Integer
PATTERN_ID	This is a unique pattern identification number, which is found in the pattern_data table.	Integer

Add one row for each end point black list pattern. For example:

|EP_ID|PATTERN_ID
1|5|
2|7|

Configuring ep_data.txt

The ep table creates an end point. An end point can be assigned to be either a what is called an end point, such as a gateway. An end point is usually a Tier 1 component that is the destination element for a route. End points are assigned to routes and are returned to the signaling application in the route response.

Table 83 shows which fields are required for each type of end point (CODE_EP_TYPE) within the ep table.

Table 82 ep_data.txt Fields

Column Name	Description	Value
EP_ID	This is a unique end point identification number for each end point.	Integer
ACTIVE	Indicates whether or not the end point status is active. 0 - Not Active 1 - Active	Integer
CODE_EP_TYPE	Defines the type of end point. 2 - Gateway 6 - Terminal 9 - Call Processor	Integer
EP_NAME	A unique name of the end point.	String
EP_DESC	A description of the end point.	String
CARRIER_ID	Not Used.	N/A
IP_ADDRESS	IP address of the network order.	x.x.x.x
DNS_NAME	This a a name of a fully qualified domain name.	String
IP_PORT	The IP Port number.	Integer
CODE_SIG_PROT	Defines the signaling protocol to use for this end point. 0 - Unknown 1 - SIP	Integer
CODE_TRAN_PROT	Defines the transport protocol to use for this end point. 1 - TCP 2 - UDP	Integer
CODE_CALL_MODEL	Defines the call model to use for this end point. This is only used by the SIP Proxy. 1 - Redirect 2 - Fully Routed 3 - Partially Routed	Integer
FOR_GK_SECRET	Not Used.	N/A
CALL_TYPES	Indicates the call type. Each call type is 2 characters long. 01 - Modem 02 - VoIP 03 - FoIP	Integer
PC_NETWORK	Not Used.	N/A
PC_CLUSTER	Not Used.	N/A

(continued)

Table 82   ep_data.txt Fields (continued)

Column Name	Description	Value
PC_MEMBER	Not Used.	N/A
CODE_BLWL_USAGE	Determines the type of blacklist or whitelist to use.	Integer
	1- Blacklist Only	
	2 - WhiteList Only	

Table 83 shows which fields are required for each type of end point (CODE_EP_TYPE):

Table 83   Required End Point Type Fields

Type of End Point	Required Column Name
Gateway = 2	■ EP_ID
	■ ACTIVE
	■ CODE_EP_TYPE
	■ IP_ADDRESS
	■ IP_PORT
	■ CODE_SIG_PROT
	■ CODE_TRAN_PROT
Terminal or SIP Phone	■ EP_ID
	■ ACTIVE
	■ CODE_EP_TYPE
	■ IP_ADDRESS or DNS_NAME
	■ IP_PORT
	■ CODE_SIG_PROT
	■ CODE_TRAN_PROT
Call Processor= 9	■ EP_ID
	■ ACTIVE
	■ CODE_EP_TYPE

Add one row for each end point. For example:

|EP_ID|ACTIVE|CODE_EP_TYPE|EP_NAME|EP_DESC|CARRIER_ID|IP_ADDR
ESS|DNS_NAME|IP_PORT|CODE_SIG_PROT|CODE_TRAN_PROT|CODE_CA
LL_MODEL|FOR_GK_SECRET|CALL_TYPES|PC_NETWORK|PC_CLUSTER|PC
_MEMBER|CODE_BLWL_USAGE
2|1|2|GWChicagoNorth|Chicago North
Suburbs||0.0.0.0||1413|2|2|||||||1|

```
3|1|2|GWChicagoWest|Chicago West
Suburbs||0.0.0.0||1413|2|2|||||||1|
```

Configuring ep_outdial_map _data.txt

The ep_outdial_map table contains the out dial pattern IDs for an end point. The out dial patterns are optional for an end point. When a route containing the end point is added to the run time tables then all out dial entries for this endpoint are included in the run time table (RT_RTEP_OUTDIAL_MAP). These out dial patterns determines how the outbound destination URI is modified. An end point can have many out dial patterns.

Table 84   ep_outdial_map_data.txt Fields

Column Name	Description	Value
EP_ID	This refers to a unique end point identification number, which was assigned in the ep_data table.	Integer
OUTDIAL_PAT_ID	This refers to a unique out dial pattern identification number, which was assigned in the outdial_patterns table.	Integer

Add one row for each user of the web provisioning server. For example:

|EP_ID|OUTDIAL_PAT_ID
```
1|1|
2|2|
```

Configuring ep_wlist_map _data.txt

The ep_wlist_map table lists an end point's whitelist patterns. Destination URIs must match these patterns, otherwise, they are not allowed.

Table 85   ep_wlist_map_data.txt Fields

Column Name	Description	Value
EP_ID	This refers to a unique end point identification number, which was assigned in the ep_data table.	Integer
PATTERN_ID	This refers to a unique pattern identification number, which was assigned in the patterns_data table.	Integer

Add one row for each user of the web provisioning server. For example:

|EP_ID|PATTERN_ID
```
1|4|
2|6|
```

Configuring global_policy _data.txt	The global_policy table determines which policies or configurables are available for the server and their status. The policies are listed in the CODE_POLICY table.

Table 86   global_policy_data.txt Fields

Column Name	Description	Value
GLOBAL_POLICY_ID	A unique identification number for the global policy.	Integer
ACTIVE	Indicates whether or not the global policy is active. policy 0 - Not Active 1 - Active	Integer

Add one row for each global policy. For example:

|GLOBAL_POLICY_ID|ACTIVE
2|1|
3|0|

Configuring global_policy_map _data.txt	The global_policy_map table contains the sub-policies of the global policies and determines which sub-policies are active.

The current global server policies that have sub-policies are:

■ URI Translation

■ Routing

Table 87   global_policy_map_data.txt Fields

Column Name	Description	Value
GLOBAL_POLICY_ID	A unique identification number for the global policy.	Integer
SUB_POLICY_ID	A unique identification number for the sub-policy.	Integer
ACTIVE	Indicates whether or not the sub-policy is active. policy 0 - Not Active 1 - Active	Integer

Add one row for each user of the web provisioning server. For example:

|GLOBAL_POLICY_ID|SUB_POLICY_ID|ACTIVE
1|31|0|
1|32|0|

Configuring holidays_data.txt

The holidays table creates a holiday date based on the month and day. This is used for URI translation and destination URI routing.

Table 88   holidays_data.txt Fields

Column Name	Description	Value
HOLIDAY_ID	A unique identification number for the holiday.	Integer
HOLIDAY_NAME	A name for the holiday.	String
HOLIDAY_MONTH	The month the holiday takes place.	Integer
HOLIDAY_DAY	The day the holiday takes place.	Integer

Add one row for each user holiday date. For example:

|HOLIDAY_ID|HOLIDAY_NAME|HOLIDAY_MONTH|HOLIDAY_DAY
2|Memorial Day|5|31|
3|July 4th|7|4|

Configuring outdial_patterns _data.txt

The outdial_patterns table contains out dial pattern matching and translation fields. If the outbound URI matches the MATCH_PATTERN_ID then the URI is translated using the TRANSLATION_STRING. The CODE_E164_TYPE field contains the type of number that the TRANSLATION_STRING creates. The CODE_E164_TYPE can be NULL (-1) if the URI is not a E.164 number.

Table 89   outdial_patterns_data.txt Fields

Column Name	Description	Value
OUTDIAL_PAT_ID	A unique identification number for the out dial pattern.	Integer
OUTDIAL_PAT_NAME	The name assigned to the out dial pattern.	String
MATCH_PATTERN_ID	This refers to a unique pattern identification number, which was assigned in the patterns_data table.	Integer
TRANSLATION_STRING	Determines how the outbound destination URI is translated. See Table 79 for translation examples.	String

(continued)

Table 89   outdial_patterns_data.txt Fields (continued)

Column Name	Description	Value
CODE_E164_TYPE	If the destination URI is a E.164 number then this field lists the type of the resultant E.164 number.	Integer
	1 - Unknown 2 - International 3 - National 4 -Network Specific 5 -Subscriber 6 -Abbreviated 7 -Reserved	
CODE_NUMPLAN_IND	Indicates the type of numbering plan used. These are defined in the CODE_NUMPLAN_IND_DATA.txt table.	Integer
	The ISDN PRI is provisioned in the outdial pattern. The directory server sends the NPI value to the SIP Proxy. The SIP proxy adds the NPI value to the outgoing SIP INVITE and send it to the gateway chosen to make the outgoing call.	
	If an NPI value is provisioned it forces an NPI value to be added to the outgoing call parameters or override an existing NPI value. A populated NPI is sent in the routSearchResponse.	
	0 - Unknown 1 - ISDN 3 - Data 4 - Telex 8 - National 9 - Private 255 - Not Populated	

Add one row for each out dial pattern. For example:

|OUTDIAL_PAT_ID|OUTDIAL_PAT_NAME|MATCH_PATTERN_ID|TRANSLATION_STRING|CODE_E164_TYPE|CODE_NUMPLAN_IND

```
2|All from 2|2|*|2|255|255
3|All from 3|3|*|3|255|0
```

Configuring patterns_data.txt

The patterns table is a supporting table that contains regular expression patterns used in various tables in the Directory schema.

Table 90   patterns_data.txt Fields

Column Name	Description	Value
PATTERN_ID	A unique identification number for the pattern.	Integer
PATTERN_NAME	The name assigned to the pattern.	String
PATTERN	The actual pattern assigned.	String

Add one row for each pattern. For example:

|PATTERN_ID|PATTERN_NAME|PATTERN
2|USA International|011*|
3|USA national|1*|

> **i**   *An alpha_numeric pattern is inserted reverse of an ANI pattern. For example, to match on the pattern johndoe@3com.com the pattern would be inserted as follows into the directory server: com.3com@johndoe.*

Configuring patterns_testcall _map_data.txt

The patterns_testcall_map table lists which patterns are being used as a test calls.

Table 91   patterns_testcall_map_data.txt Fields

Column Name	Description	Value
PATTERN_ID	This refers to a unique pattern identification number, which was assigned in the patterns_data table.	Integer
CODE_TESTCALL_TYPE	Indicates the type of test call. 1 - 105 Test Call 2 - 108 Test Call	Integer

Add one row for each test call assigned to a pattern. For example:

|PATTERN_ID|CODE_TESTCALL_TYPE
21|1|
22|2|

Configuring requestors_data.txt

The editing_requestors table contains requestors that are used as source based input parameter for URI Translation and Destination URI Routing. Requestors are usually Tier 1 or Tier 2 components.

Table 92 editing_requestors_data.txt Fields

Column Name	Description	Value
REQ_ID	A unique identification number for the requestor.	Integer
REQ_NAME	The name assigned to the requestor.	String
IP_ADDRESS	IP address of the network order.	x.x.x.x
IP_PORT	The IP Port number.	Integer
DNS_NAME	This a a name of a fully qualified domain name.	String
DAYLIGHT_SAVINGS	Indicates whether or not daylight savings time active. 0 - Not active 1 - Active	Integer
TZ_OFFSET	Number of seconds offset from GMT.	Integer
TZ_NAME	A name for the time zone used such as CST or EST.	String

Add one row for each requestor. For example:

|REQ_ID|REQ_NAME|IP_ADDRESS|IP_PORT|DNS_NAME|DAYLIGHT_SAVINGS|TZ_OFFSET|TZ_NAME

```
2|chicago|0.0.0.0|1234|chicago|1|8|EAST|
3|Munchen Machine|0.0.0.0|1234|munchen|1|8|CENTRAL|
```

Configuring route_data.txt
The route table contains routes for the server. A route is a collection of end points that are sorted depending on the CODE_ROUTE_SORT_POLICY.

Table 93 route_data.txt Fields

Column Name	Description	Value
ROUTE_ID	A unique identification number for the route.	Integer
ROUTE_NAME	The name assigned to the route.	String
CODE_ROUTE_CONTACT	This field is used by the SIP Proxy to determine how the end points in the route are activated. A sequential contact method tries the end points in the route serially while a parallel contact method will try to contact all the end points in the route at the same time. 1 - Sequential 2 - Parallel	Integer
CODE_ROUTE_SORT_POLICY	This field determines how the routes are sorted in the directory route response. 1 - Alternative 2 - Load Balanced	Integer
TOTAL_EP	This indicates the total number of end points in the route. Used only by the Sequential Hunting Policy.	Integer
SEQ_SORT_START	This indicates the sequential sorting starting end point.	Integer
SEQ_SORT_NEXT	This indicates the sequential sorting next end point.	Integer

Add one row for each route. For example:

|ROUTE_ID|ROUTE_NAME|CODE_ROUTE_CONTACT|CODE_ROUTE_SORT
_POLICY|TOTAL_EP|SEQ_SORT_START|SEQ_SORT_NEXT
1|Chicago630|1|1||||
2|Chicago847|1|1||||

Configuring route_ep_map _data.txt

The route_ep_map table contains all the end points for the route. A bundle end point will not be expanded in this table.

Table 94   route_ep_map_data.txt Fields

Column Name	Description	Value
ROUTE_ID	This refers to a unique route identification number, which was assigned in the route_data table.	Integer
EP_ID	This refers to a unique end point identification number, which was assigned in the ep_data table.	Integer
ACTIVE	This indicates whether or not an end point for this route is active 0 - Not Active 1 - Active	Integer
CODE_EP_TYPE	This is a convenience field to help with triggers and stored procedures. This is used if the end point is a bundle. 2 - Gateway 6 - Terminal 9 - Call Processor	Integer
EP_ROUTE_SORT_ORDER	This indicates the order of the end point in the Directory route response. Defaults to 0 with 1 be the highest priority.	Integer

Add one row for end point in a route. For example:

|ROUTE_ID|EP_ID|ACTIVE|CODE_EP_TYPE|EP_ROUTE_SORT_ORDER
1|3|1|2|1|
1|1|1|2|2|

Configuring route_ep_outdial _map_data.txt

The route_ep_outdial_map table contains out dial patterns for the combination of the route and end point. The out dial patterns can be set at the route-endpoint level thus allowing a common set of out dial patterns to be applied to each end point in the route.

These records will be copied to the run time table RT_RTEP_OUTDIAL_MAP along with the endpoint's out dial patterns when a route is added to the run time table.

Table 95 route_ep_outdial_map_data.txt Fields

Column Name	Description	Value
ROUTE_ID	This refers to a unique route identification number, which was assigned in the route_data table.	Integer
EP_ID	This refers to a unique end point identification number, which was assigned in the ep table.	Integer
OUTDIAL_PAT_ID	This refers to a unique out dial pattern identification number, which was assigned in the outdial_patterns_data table.	Integer

Add one row for each out dial patterns for the combination of the route and end point. For example:

|ROUTE_ID|EP_ID|OUTDIAL_PAT_ID
1|3|1|
1|1|2|

Configuring trusted_clients _data.txt

The trusted_clients_profiles table holds all the trusted clients for the server. Any application using the BES client library that wishes to connect to the BES server must be listed in this table.

Table 96 trusted_clients_data.txt Fields

Column Name	Description	Value
CLIENT_ID	A unique identification number for the client.	Integer
CLIENT_NAME	The name assigned to the client.	String
IP_ADDRESS	IP address of the network order.	x.x.x.x
IP_PORT	The IP Port number. A zero value is a wildcard that matches any port for the IP address.	Integer
DNS_NAME	This a a name of a fully qualified domain name.	String
RADIUS_SECRET	Not used.	N/A

Add one row for each trusted client. For example:

|CLIENT_ID|CLIENT_NAME|IP_ADDRESS|IP_PORT|DNS_NAME|RADIUS_SE
CRET
3|GK4|152.67.61.52|1025|||
2|Chicago PC|0.0.0.0|0|chicago pc||

D

MANUALLY CONFIGURING THE ACCOUNTING SERVER

The accounting server is automatically configured through scripts during the installation. This appendix is provided as reference in case you want to manually reconfigure the accounting server or to troubleshoot configurations that may be broken.

Configuring Accounting Server Database Tables

The accounting server uses database tables to govern the processing of CDRs. Configure these tables according to your customized needs.

> *You must restart the accounting server after changing the DDL_CDR_FIELDS database table. Changes to the other database tables do not require restarting.*

The accounting server is generally configured using the database tables, it can also be configured by directly editing the tables in Oracle (this requires a very detailed knowledge of the various tables). You can use a graphic tool such as Oracle DBA Studio, or a SQL command line tool like SQL*Plus, to access the tables. See Table 97.

Table 97   Accounting Server Database Table Configuring Methods

Text File Name	Bulk Loading	Oracle
Configuring acct_server_config*	X	X
Configuring acct_server_list*	X	X
Configuring bss_acct_server_map*	X	X
Configuring job_delete_cdrs	X	X
Configuring job_export_cdrs	X	X
Configuring job_export_fields_ map	X	X
Configuring job_ uploadruntimecdr	X	X
Configuring upload_history*		X

$\boxed{\mathbf{i}}$ **If no billing support servers are in the system, it is not necessary to edit the information in these tables.*

Configuring acct_server_config

Use the acct_server_config table to assign the SERVER_ID_ACCT for this accounting server. If you also configured the Configuring acct_server_list and Configuring bss_acct_server_map tables, the data contained in those tables must be consistent with the data in the Configuring acct_server_config table.

There is no sample data for this table.

Table 98 acct_server_config_data.txt Fields

Column Name	Description	Value
SERVER_ID_ACCT	Assign the SERVER_ID of this accounting server. This value is the same as the value of the SERVER_ID_ACCT field in the "Configuring acct_server_list" table.	Integer
DOMAIN_NAME	N/A	String
MGMT_USER	N/A	String
MGMT_USER_PASSWORD	N/A	String
MGMT_SOCKET_PORT	N/A	Integer

Configuring acct_server_list

The acct_server_list table lists all of the accounting servers in the system.The SERVER_ID_ACCT is used to identify the accounting server in other database tables.

Table 99 acct_server_list_data.txt Fields

Column Name	Description	Value
SERVER_ID_ACCT	A unique identifier for an accounting server.	Integer
SERVER_CONNECTION	The database name or net service name (Oracle database SID) for the accounting server database (also called the TNS string). Billing support and other accounting servers use this name to access the database.	String
DESCRIPTION	A description of the accounting server.	String

Add one row for each accounting server. For example:

```
|SERVER_ID_ACCT|SERVER_CONNECTION|DESCRIPTION
1|besdb1|testbed1, TORONTO |
2|besdev|testbed2, Chicago |
```

i> *To avoid connection errors in a system with multiple accounting and billing support servers, use the <dbname> for the SERVER_CONNECTION column for all accounting and billing support server databases.*

i> *Add the service name (<dbname>) to each TNS file on every node (accounting and billing support servers) in your network. Add this name by either editing the TNS file, setting up through Net8, or by adding a node through DBA Studio. To locate the TNS file, refer to the Oracle operating system documentation or ask your database administrator.*

Configuring bss_acct_server_map

Use the bss_acct_server_map table to map a billing support server with an accounting server.

Table 100   bss_acct_server_map_data.txt Fields

Column Name	Description	Value
SETUP_DATE	The date this entry was entered.	Date
		dd-mmm-yyyy
DESCRIPTION	A description of this relationship.	String
SERVER_ID_ACCT	A unique identifier for this accounting server. SERVER_ID_ACCT in this table must match a SERVER_ID_ACCT in the "Configuring acct_server_list" table.	Integer
SERVER_ID_BSS	A unique identifier for a billing support server.	Integer
FLG_COLLECT_REQ	Not used.	N/A

Add one row for each billing support server/accounting server relationship. For example:

```
|DESCRIPTION|SETUP_DATE|SERVER_ID_BSS|SERVER_ID_ACCT|
FLG_COLLECT_REQ
BSS on besdb1 and Accounting server on besprod|19-NOV-2001
00:00:00|1|1||
```

i> *If there is only one accounting server and one billing support server in the system, only one record should be in this table. If there are two accounting servers and only one billing support server uploading CDRs from both accounting servers, two records should be in this table. If there are two accounting servers and two billing support servers in the system, there should be four records at most in this table, depending on the real mappings.*

Configuring bss_server_list

The bss_server_list table lists all of the billing support servers in the system. This unique identifier is used to identify the billing support server in other database tables.

Table 101   bss_server_list_data.txt Fields

Column Name	Description	Value
SERVER_ID_BSS	A unique identifier for this billing support server.	Integer
	NOTE—Make sure you are consistent with the SERVER_ID_BSS values found in the "Configuring bss_acct_server_map" and **bss_server_config (on the billing support server)** tables.	
SERVER_CONNECTION	The database name or net service name (Oracle database SID) for the billing support server database (also called the TNS string). Billing support and other accounting servers use this name to access the database.	String
	NOTE—3Com recommends using the *<dbname>* as the SERVER_CONNECTION value.	
DESCRIPTION	A description of this billing support server.	String

Add one row for each billing support server. For example:

```
|SERVER_ID_BSS|SERVER_CONNECTION|DESCRIPTION
1|besdb2|testbed1,TORONTO|
```

Configuring job_delete_cdrs

Use the job_delete_cdrs table to schedule the job that removes/deletes data from the database. To execute the job immediately, the job only needs a JOB_NUMBER.

Table 102   job_delete_cdrs_data.txt Fields

Column Name	Description	Value
JOB_ID	The unique identifier for the job	Integer
JOB_NUMBER	This value is assigned by Oracle, not by user assignment.	N/A
JOB_TO_SUBMIT	The job name, usually a stored procedure name, such as CWDELETE.delcdr.	string
JOB_NEXT_RUN	The next date/time the job will be run	Date

(continued)

Table 102 job_delete_cdrs_data.txt Fields (continued)

Column Name	Description	Value
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5 minutes. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour.	sysdate+Integer
ACTIVE_STATUS	0 = Not active, the job this record represents will not be submitted. 1= Active, the job this record represents will be submitted. 2 = Already submitted.	0,1,2
DELETE_OLD_CDR	Not used	N/A
DELETE_EXPORTED	0 = Do not delete crds that have been exported. 1 = Delete the cdrs that have been exported.	0,1
HOLD_DAYS	Number, days of retention period. If set, CDRs will be held in database for this period of time. If you do not enter a value for HOLD_DAYS, the default value (7) will be used. When deleting CDRs, the accounting server uses the HOLD_DAYS and BSS_SENSITIVE (found in the Configuring upload_history table) configuration fields.	Integer Default = 7
DELETE_WHERE_CLAUSE	A SQL clause that defines special conditions for deleting the cdrs from the table.	String
DESCRIPTION	A description of this job.	String

Add one row for each scheduled job. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|A
CTIVE_STATUS|DELETE_OLD_CDR|DELETE_EXPORTED|HOLD_DAYS|DELETE
_WHERE_CLAUSE|DESCRIPTION
1||CWDELETE.DELCDR||SYSDATE+1|1||1|7|||
```


Do not set more than one entry to ACTIVE_STATUS. Only the record with ACTIVE_STATUS=1 will be submitted.
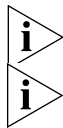
> **i** *Assign the JOB_TO_SUBMIT as CWDELETE.delcdr.*
>
> **i** *To resubmit a job that is already in queue, you must delete the job, make changes to the record, change the ACTIVE_STATUS to 1, and then resubmit it.*

Configuring job_export_cdrs

The Oracle built-in DBMS_JOB package will be used for extracting and exporting data to flat files. The JOB_NUMBER, JOB_TO_SUBMIT, JOB_NEXT_RUN, JOB_INTERVAL, and JOB_PARSING parameters are DBMS_JOB package parameters. The other attributes are different custom settings.

Place a job into the job queue and it will run on a periodic basis. To execute a job immediately, it is necessary to have only the JOB_NUMBER parameter.

Table 103   job_export_cdrs_data.txt Fields

Column Name	Description	Value
JOB_ID	The unique identifier for the job	Integer
JOB_NUMBER	This value is assigned by Oracle, not by user assignment.	N/A
JOB_TO_SUBMIT	The type of job, usually a stored procedure. For example, CWE.output.	String
JOB_NEXT_RUN	The next date/time the job will be run	Date
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5 minutes. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour. A value of sysdate+1/48 would mean that the job would run every 30 minutes.	sysdate+Integer
FILE_NAME	Output file name	String
FILE_PATH	To avoid installation errors, the FILE_PATH must be an existing path on the Oracle server machine. This path must be defined in the Oracle initialization file (init<SID>.ora), under the UTL_FILE_DIR entry.	Path name

(continued)

Table 103 job_export_cdrs_data.txt Fields (continued)

Column Name	Description	Value
COL_DELIMETER	Column delimiter, such as a comma(,) or pipe (|).	Character
ACTIVE_STATUS	0 = Not active, the job this record represents will not be executed.	0,1,2
	1= Active, the job this record represents will be executed.	
	2 = Already submitted.	
ROW_DELIMETER	Row delimiter	N/A
FILE_TYPE	Type of file	N/A
SET_COMPLETE_INTERVAL	This is only used for SuperCDRs.	N/A
SELECT_WHERE_CLAUSE	A SQL clause that defines special conditions for selecting the CDRs from the table.	N/A
DESCRIPTION	A description of this job.	String

Add one row for each job you want to export CDRs for. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|F
ILE_NAME|FILE_PATH|COL_DELIMITER|ACTIVE_STATUS|ROW_DELIMITER
|FILE_TYPE|SET_COMPLETE_INTERVAL|SELECT_WHERE_CLAUSE|DESCRIP
TION
1||CWE.OUTPUT||SYSDATE+1|||,|1|||||this is a description|
```

$\boxed{\mathbf{i}}$ *Assign the JOB_TO_SUBMIT as* CWE.OUTPUT.

$\boxed{\mathbf{i}}$ *To resubmit a job that is already in queue, you must delete the job, make changes to the record, change the ACTIVE_STATUS to 1, and then resubmit it.*

Configuring job_export_fields_ map

The job_export_fields_map table specifies which CDR fields are exportable and in what sequence the fields will be exported. For each CODE_SOURCE_ID, specify the exportable CDR fields and in what sequence to export those fields. For CDRs with different CODE_SOURCE_ID values (source identifiers), you may want to export only specific fields.

Table 104 job_export_fields_map_data.txt Fields

Column Name	Description	Value
CODE_SOURCE_ID	Source identifier code.	Integer
	This field maps to the CODE_CDR_SOURCE_ID table in the **cwcom** common database.	Common values include the following:
		0—unknown
		259—gatekeeper ingress open
		515—gatekeeper ingress close
		260—gatekeeper egress open
		516—gatekeeper egress close
DDL_FLD_ID	Defines the CDR field ID number.	Integer
	This field maps to the DDL_CDR_FIELDS table in the **cwacct** database.	
ORDER_IN_SRCID	The order in which the CDRs are output to file. This order is for each CODE_SOURCE_ID.	Integer

Add one row for each job to CDR mapping. For example:

```
|CODE_SOURCE_ID|DDL_FLD_ID|ORDER_IN_SRCID
259|1|1|
259|2|2|
```

Configuring job_ uploadruntimecdr
Is used for to transfer CDRs from RT_CDR1 and RT_CDR2 to RT_CDR on low performance servers for a system with both an accounting and billing support server.

Table 105 job_uploadruntimecdr_list_data.txt Fields

Column Name	Description	Value
JOB_ID	A unique identifier for a job.	Integer
JOB_NUMBER	This value is assigned by Oracle, not by user assignment.	N/A
JOB_TO_SUBMIT	The job name, which is CWHISTORY.UPLOADRTCDRLowPerf for low performance systems.	String
JOB_NEXT_RUN	The next date/time the job will be run	Date
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5 minutes, which is optimal. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour.	sysdate+integer
CREATE_TIME	Creates time of the record.	Integer
ACTIVE_STATUS	0 = Not active, the job this record represents will not be submitted.	1, 2, or 3
	1= Active, the job this record represents will be submitted.	
	2 = Already submitted.	
WAIT_SECOND	Number of seconds the Upload process should wait after notifying the accounting server application to switch from one table to other.	Integer
DESCRIPTION	Describes what the job function is.	String

Add one row for each job. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|C
REATE_TIME|ACTIVE_STATUS|WAIT_SECOND|DESCRIPTION
1||CWHISTORY.UPLOADRTCDRLowPerf||SYSDATE+1/(24*12)||1|30|for
transferring CDRs from RT_CDR1,RT_CDR2 to RT_CDR, low
Performance|
```

Configuring upload_history

The upload_history table lists each billing support server and the upload CDR range. The billing support server uses the upload_history table during an upload procedure. The accounting server uses the upload_history table during CDR deletions.

Table 106   Upload_history Fields

Field	Description	Value
PREV_ENDING_CDR	The ID of the final CDR in the last upload.	Integer
CURR_ENDING_CDR	The ID of the final CDR in the current upload.	Integer
BSS_SENSITIVE	Indicates whether the accounting server should or should not delete the uploaded CDRs for the next scheduled deletion job.	Integer (0,1)
	1 = The accounting server may delete the uploaded CDRs.	
	0 = The accounting server is not directed to delete CDRs uploaded to the billing support server.	
SERVER_ID_BSS	The unique ID of the billing support server that is mapped to this accounting server.	Integer

E MANUALLY CONFIGURING THE BILLING SUPPORT SERVER

The billing support server is automatically configured through scripts during the installation. This appendix is provided as reference in case you want to manually reconfigure the billing support server or to troubleshoot configurations that may be broken.

Manually Creating Database Links

Database links must be configured from the billing support server to each accounting server or else the data direction will be incorrect. The VCX installation provides default database links that are for a billing support server and accounting server that are on the same host machine. A new database link needs to be created if the billing support server and accounting server are on different host machines.

Each accounting server that uploads CDRs to the billing support server must connect to the billing support server using an Oracle database link. Create the database link using Oracle Enterprise Manager or the SQLPLUS command line interface. This section describes creating the database link using the SQLPLUS command line interface.

- **Server Name** — The Oracle SID for the accounting server database. This is NOT the host name of the machine hosting the accounting server database.
- **Server Domain** — the domain name for the Linux server that is hosting the accounting server.
- **Oracle Service Name** — the Oracle service name for the accounting server database.

To create the database link:

1 Using a text editor, open the ***dblink.sql*** script (located in the /opt/3com/VCX/bss/db/cwbss/mod directory). The file is similar to the following:

```
create database link cwbes.self connect
to cwacct identified by besgroup using ''cwbes''';
commit;
exit;
```

2 Change `cwbes.self` to **<Server Name>.<Server Domain Name>** where the accounting database is installed.

3 Change `besgroup` to the cwacct accounting database user password.

4 Change `cwbes` to the Oracle service name for the accounting server database (also called the TNS string, net service name, and service name).

5 Run the dblink.sql script by connecting to the billing support server database with sqlplus as the cwbss user.

For example: SQL>**@dblink.sql**

Manually Configuring Upload from Multiple Accounting Servers

Use these steps to manually configure a single billing support server to upload from multiple accounting servers.

> **i>** *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

1 Configure the following tables:

- **BSS_SERVER_LIST** — See *"Configuring bss_server_list"* on *page 304* for fields descriptions.

- **ACCT_SERVER_LIST** — See *"Configuring acct_server_list"* on for fields descriptions, there should be multiple accounting server records.

- **BSS_ACCT_SERVER_MAP** — See *"Configuring bss_acct_server_map"* on *page 305* for fields descriptions.

■ **BSS_SERVER_CONFIG** — See *"Configuring bss_server_config"* on *page 303* for fields descriptions.

2 Verify there are database links from the billing support server to each accounting server. When creating database links, from the ACCT_SERVER_LIST table, the SERVER_CONNECTION field must be used as the remote service name.

3 Configure the JOB_COLLECT_CDR table to schedule the upload job. For each accounting server from which the billing support server collects CDRs, there must be one record in the JOB_COLLECT_CDR table. See *"Configuring job_collect_cdr"* on *page 306* for more information.

For each record, the following fields should be correct:

■ JOB_ID — assign a number to this record, it is the ID field.

■ JOB_NUMBER — Just keep it empty since Oracle overwrites this column and assigns a correct job number.

■ JOB_TO_SUBMIT — Enter the type of job to run such as CWU.UPLOADRUNTIMECDR or CWU.CDRCOPY.

■ JOB_NEXT_RUN — Can leave empty.

■ JOB_INTERVAL — Enter **sysdate+1/(24*12)** which sets the job interval to every 5 minutes or **sysdate+1/(24*6)** which sets the job interval to every 10 minutes.

■ CREATE_TIME — Can leave empty.

■ ACTIVE_STATUS — Must be set to 1 if you want it active. It will be overwritten to 2 if this job is scheduled successfully.

■ CDR_NUM_PER — Leave this empty.

■ DESCRIPTION — Enter a description for the job.

■ SERVER_ID_ACCT — Enter the correct ACCT SERVER ID. This value must be defined in ACCT_SERVER_LIST.

For example, if there are two accounting servers sending CDRs to one billing support server, then the table JOB_COLLECT_CDR must have 2 records configured.

4 Submit the uploading jobs.

Connect to SQL plus as the user *cwbss* and run the following script:

```
set serveroutput on
begin
```

```
cwu.job_upload;
end;
```

Manually Configuring Oracle Jobs on an Accounting Server

In this configuration the billing support server extracts data from the accounting server's RT_CDR1 and RT_CDR2 tables directly and inserts them into its RT_CDR table and then truncates the tables on the accounting server. There is additional configuration performed on the accounting server database side.

> **i** *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

> **i** *Some configuration steps are required on the accounting server, see Configuring the Accounting Server for more information*

1 Configure the following tables on the billing support server:

- ACCT_SERVER_LIST
- BSS_SERVER_LIST
- BSS_ACCT_SERVER_MAP
- BSS_SERVER_CONFIG

2 On the billing support server, configure a database link for each accounting server from each billing support server.

3 On the billing support server, configure the JOB_COLLECT_CDR table. Refer to the "Manually Scheduling the CDR Upload" on page 294.

a Set JOB_TO_SUBMIT to CWU.UPLOADRUNTIMECDR.

> **i** *The package name is CWU, rather than CWHISTORY.*

b Set JOB_INTERVAL to the job frequency. For example SYSDATE+1/(24*12) equals 5 minutes and SYSDATE+1/(24*6) equals 10 minutes.

c Set ACTIVE_STATUS to 1 for this record.

4 Schedule the JOB for upload.

a From a SQL Plus command line, connect to the billing support server as *cwbss* user.

b Execute the following commands:

```
set serveroutput on
begin
CWU.UPLOADRUNTIMECDR;
end;
```

5 Schedule the CDR merge job. Refer to the "Manually Scheduling the CDR Merge" on page 296.

6 Schedule the Super CDR export job. Refer to the "Manually Scheduling the Super CDRs Export" on page 298.

7 Schedule the Super CDR delete job. Refer to the "Manually Scheduling the Super CDR Delete" on page 300.

Manually Uploading CDRs

The billing support server uploads CDRs into the billing support server from one or more accounting servers (from the accounting server *RT_CDR* table to the billing support server *RT_CDR* table). 3Com recommends scheduling regular CDR uploads, but the cwu.upload procedure can be run separately for a one-time upload. This section describes both procedures.

> **i** Before CDRs can be uploaded, a database link from the billing support server to any accounting server must be created. If the billing support server and accounting server are on the same host machine, a default database link was created during installation. If the billing support server and the accounting server are on the different host machines, then a new database link should be created rather than using the default database link. If there are multiple accounting server that are linked to the same billing support server, there must be one database link created for each accounting server. A database link only works when created from the billing support server to each accounting server. Refer to how to create database link for details.

> **i** *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default*

schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.

Manually Running the CDR Upload

Use the ***CWU.UPLOAD*** procedure to manually upload CDRs from the accounting server(s) to the billing support server.

To manually upload CDRs:

1 From a SQL Plus command line login as the *cwbss* user.

2 Enter the following script:

```
set serveroutput on
begin
cwu.upload;
commit;
end;
```

> **i** *If the script returns an error, make sure that the database link is correct and that the SERVER_ID_BSS and SERVER_ID_ACCT mapping is correct.*

The data from the accounting server database's RT_CDR table is loaded into the billing support server's RT_CDR table.

Manually Scheduling the CDR Upload

Use the ***CWU.JOB_UPLOAD*** procedure to upload CDRs as scheduled in the ***job_collect_cdr*** table.

> **i** *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

To upload scheduled CDRs:

1 Add the job to the ***job_collect_cdr*** table.

2 Verify the configuration of the ***job_collect_cdr*** table.

- Only the record with ACTIVE_STATUS=1 is submitted. Verify that only one entry is set to ACTIVE_STATUS=1.

- Verify that the job_to_submit is CWU.UPLOAD.

- Verify that the job_interval is set correctly.

3 From a SQL Plus command line, login as the *cwbss* user.

4 Enter the following script:

```
set serveroutput on
begin
CWU.JOB_UPLOAD;
end;
```

The CDR upload runs as scheduled. Once the CDR upload runs, the data from the accounting server database's RT_CDR table is loaded into the billing support server's RT_CDR table.

$\boxed{\mathbf{i}}$ *To kill a scheduled job, refer to Manually Dropping a Scheduled Job.*

Manually Merging CDRs into Super CDRs

The billing support server merges CDRs collected during the CDR upload procedure into a singe super CDRs per call (the CDRs are stored in the *rt_cdr* table and merged into the *rt_super_cdr_status* table). The billing support server can then export the collected super CDRs for use in proprietary billing systems.

3Com recommends scheduling regular CDR merges but the cwm.mergecdr procedure can be run separately for a one-time merge. This section describes both procedures.

$\boxed{\mathbf{i}}$ *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

$\boxed{\mathbf{i}}$ *Perform these procedures after Manually Uploading CDRs.*

Manually Running the CDR Merge

Use the **CWM.JOB_MERGE** procedure to manually merge individual CDRs into super CDRs.

To manually merge CDRs into super CDRs:

1 From a SQL Plus command line, login as the *cwbss* user.

2 Enter the following script:

```
set serveroutput on
begin
cwm.mergecdr;
commit;
end;
```

The completed calls from the billing support server's RT_CDR table are merged into the ***rt_super_cdr_status*** table.

Manually Scheduling the CDR Merge   Use the *CWM.MERGECDR* procedure to merge CDRs into super CDRs as scheduled in the ***job_merge_cdr*** table.

> **i** *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

To merge the CDRs on a schedule:

1 Add the job to the *job_merge_cdr* table.

2 Verify the configuration of the *job_merge_cdr* table.

- Only the record with ACTIVE_STATUS=1 is submitted. Verify that only one entry is set to ACTIVE_STATUS=1.

- Verify that the job_to_submit is CWM.MERGECDR.

- Verify that the job_interval is set correctly.

3 From a SQL Plus command line, login as the *cwbss* user.

4 Enter the following script:

```
set serveroutput on
begin
```

```
CWM.JOB_MERGE;
end;
```

The CDR merge runs as scheduled. Once the CDR merge runs, the completed calls from the billing support server's RT_CDR table are merged into the RT_SUPER_CDR_STATUS table.

i *To drop a scheduled job, refer to Manually Dropping a Scheduled Job.*

Manually Exporting Super CDRs

The billing support server can export super CDRs into a text file (Super CDRs are stored in the ***rt_super_cdr_status*** table). Once in a text file, proprietary customer billing systems can import the data as needed. 3Com recommends scheduling regular super CDR exports, but the cwe.outsuper procedure can be run separately for a one-time export. This section describes both procedures.

i *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

i *Perform these procedures after Manually Merging CDRs into Super CDRs.*

i *If this is the first time exporting super CDRs, make sure the UTL_FILE_DIR entry in the oracle initialization file (init<SID>.ORA) is set.*

Manually Populating the User Call History

Use the ***CWE.FILL_OUT*** procedure to manually populate the USER_CALL_HISTORY table.

To manually populate the USER_CALL_HISTORY table:

1 From a SQL Plus command line, login as the *cwbss* user.

2 Enter the following script:

```
SET SERVEROUTPUT ON
BEGIN
CWE.FILL_OUT;
END;
```

The USER_CALL_HISTORY table should be populated from information in the call records for each URI_ID. The call history for a user can be viewed in the web provisioning server.

>
> *Any call where the start time, end time, and duration equals zero (for example, when a call is forwarded or not answered), the date is translated to 1970-01-01 in the Start Time and End Time columns of the Call History.*

Manually Running the Super CDR Export

Use the **CWE.OUTPUT** procedure to manually export super CDRs to a flat file.

To manually export super CDRs:

1 From a SQL Plus command line, login as the *cwbss* user.

2 Enter the following script, making sure to set the p_dir and p_filename variables equal to the correct directory and filename:

```
SET SERVEROUTPUT ON;
DECLARE
p_dir varchar2(250);
p_filename varchar2(250);
p_separator varchar2(10);
BEGIN
p_dir:='/export/home/users/oracle/temp/output';
p_filename:='SuperCDR';
p_separator:='|';
CWE.OUTPUT(p_dir,p_filename,p_separator);
END;
```

The file set as the export file contains the CDR fields specified in the **job_export_fields_map** table.

Manually Scheduling the Super CDRs Export

Use the **CWE.JOB_EXPORT** procedure to complete the USER_CALL_HISTORY and to export Super CDRs into a flat file as scheduled in the job_export_supercdr table. This job schedule actually schedules two jobs: **fill_out** job and **export** job.

To export the super CDRs on a schedule:

1 Add the job to the **job_export_supercdr** table.

2 Verify the configuration of the **job_export_supercdr** table.

- Only the record with ACTIVE_STATUS=1 is submitted. Verify that only one entry is set to ACTIVE_STATUS=1.
- Verify that the job_to_submit is CWE.OUTPUT.
- Verify that the job_interval, file_name, file_path, and col_delimiter entries are set correctly.

3 From a SQL Plus command line, login as the *cwbss* user.

4 Enter the following script:

```
set serveroutput on
begin
CWE.JOB_EXPORT;
end;
```

The super CDRs are exported as scheduled. Once the super CDR export is run, the file set as the export file contains the CDR fields specified in the *job_export_fields_map* table.

> *To kill a scheduled job, refer to Manually Dropping a Scheduled Job.l*

Manually Deleting CDRs

The billing support server deletes super CDRs stored in the *rt_super_cdr_status* table (and in the rt_cdr, rt_cdr_pointer tables) based on the configuration of the table *supercdr_hold*. The supercdr_hold table determines the amount of time (days) the super CDRs are saved in database and the total number of super CDRs for each *account_id* (or URI_ID). The default holding is 30 days or 100 records for each account_id (or URI_ID), which ever is less.

> *The billing support server installation procedure schedules all the necessary Oracle jobs for the billing support server for default configuration. If you want to use the default configuration, you do not need to do any Oracle job scheduling such as uploading CDRs, merging CDRs into Super CDRs, exporting Super CDRs, and deleting CDRs. If you do not use the default configuration, you should drop the default schedules of the Oracle jobs and submit the Oracle jobs following the instructions in the dedicated sections of this guide.*

> *The **supercdr_hold** table overrides any data deletion. If the **supercdr_hold** table is configured to hold calls for a certain period of time or up to a certain number of CDRs, the CDRs are held until those conditions are met. To delete the CDRs immediately, disable the holding parameters set both the **HOLDING_PERIOD** and **NUM_LIMIT** fields in*

the **supercdr_hold** *table to 0). Only disable holding parameters for testing purposes.*

Manually Running the Super CDR Delete

Use the **cwdelete.delsupercdr** procedure to manually delete stored super CDRs.

To manually delete super CDRs:

1 From a SQL Plus command line, login as the *cwbss* user.

2 Enter the following script:

```
set serveroutput on
begin
cwdelete.delsupercdr;
end;
```

The billing support server deletes the CDRs in the **rt_cdr** and **rt_super_cdr_status** tables.

Manually Scheduling the Super CDR Delete

Use the **cwdelete.job_delete** procedure to delete stored super CDRs and individual CDRs.

To delete super CDRs on a schedule:

1 Add the job to the **job_delete_cdr** table.

2 Verify the configuration of the **job_delete_cdr** table.

- Only the record with ACTIVE_STATUS=1 is submitted. Verify that only one entry is set to ACTIVE_STATUS=1.

- Verify that the job_to_submit is CWDELETE.DELSUPERCDR.

- Verify that the job_interval is set correctly.

3 From a SQL Plus command line, login as the *cwbss* user.

4 Enter the following script:

```
set serveroutput on
begin
CWDELETE.JOB_DELETE;
end;
```

The CDRs are deleted as scheduled. Once the job has run, the billing support server deletes the CDRs in the **rt_cdr** and **rt_super_cdr_status** tables.

$\boxed{\mathbf{i}}$ *To kill a scheduled job, refer to Manually Dropping a Scheduled Job.*

Manually Dropping a Scheduled Job

To kill or drop a job, acquire the job number and then drop the job from using the SQL Plus command line.

Manually Acquiring a Job Number

To acquire a submitted job number:

1 From a SQL Plus command line, login as the *cwbss* user.

2 Enter one of the following scripts:

- **SELECT JOB FROM USER_JOBS;**

- **SELECT JOB_NUMBER, JOB_TO_SUBMIT FROM JOB_DELETE_CDRS;**

The script returns the job number.

Manually Dropping a Job

To drop a job:

1 From a SQL Plus command line, login as the *cwbss* user.

2 Enter the following script:

```
set serveroutput on
begin
DBMS_JOB.REMOVE(job_number);
end;
```

Manually Resuming a Broken Job

To resume a broken job, acquire the broken job number, fix the problem, and then resume the job using a SQL Plus command line.

Manually Acquiring a Broken Job Number

To acquire a broken job number:

3 From a SQL Plus command line, login as the *cwbss* user.

4 Execute the SQL script:

```
SELECT JOB, BROKEN FROM USER_JOBS;
```

The job number can be identified by viewing the JOB number where the BROKEN status is Y.

Manually Resuming a Job

To resume a job (after fixing the problem of job broken):

1 From a SQL Plus command line, login as the *cwbss* user.

2 Execute the SQL script:

```
begin
DBMS_JOB.RUN(job_number);
end;
```

The broken job is resumed.

Viewing the Log Files

The billing support server's log files are located in the /opt/3com/VCX/bss/log directory. There are two types of log files for the billing support server: the database creation log and the bulkload logs.

Database creation log—The database creation log (cwbss_install_yyyymmdd_hhmmss) logs the messages returned when the makedb.pl was run

Bulkload logs—Oracle creates an output file for each table that is bulkloaded. This file (<tablename>_output.txt) contains the data the data was bulkloaded and the number of records input into the database.

Manually Configuring the Database Tables through Bulk Loading

This section describes the database tables and fields:

- Configuring bss_server_config
- Configuring bss_server_list
- Configuring acct_server_list
- Configuring bss_acct_server_map
- Configuring job_collect_cdr
- Configuring job_delete_cdr
- Configuring job_export_fields _map
- Configuring job_export_supercdr
- Configuring job_merge_cdr
- Configuring supercdr_hold

3Com does not recommend editing the following tables:

- code_cdr_status
- code_complete_reason
- acct_cdr_collect_range
- time_stamp

Configuring bss_server_config

The bss_server_config table assigns a domain to each billing support server.

Table 107 Bss_server_config Fields

Field	Description	Value
SERVER_ID_BSS	A unique identifier for this billing support server. The SERVER_ID_BSS in this table should match a SERVER_ID_BSS in the **bss_server_list** table.	Integer
DOMAIN_NAME	Not used	N/A
MGMT_USER	Not used	N/A
MGMT_USER_PASSWORD	Not used	N/A
MGMT_SOCKET_PORT	Not used	N/A

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/bss_server_config_data.txt file.

- To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/bss_server_config_dat a.txt file.

2 Add one row for each billing support server. For example:

```
|SERVER_ID_BSS|DOMAIN_NAME|MGMT_USER|MGMT_USER_PASSWORD|MGMT
_SOCKET_PORT
1||||
```

3 Save and close the file.

Configuring bss_server_list   The bss_server_list table creates a unique identifier for each billing support server in the system. The billing support server uses this identifier to identify the billing support server in related tables.

Table 108   bss_server_list Fields

Column Name	Description	Value
SERVER_ID_BSS	A unique identifier for this billing support server.	Integer
SERVER_CONNECTION	The Oracle service name for the billing support server database (also called the TNS string, net service name, and service name).	String
DESCRIPTION	A description of this billing support server.	String

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/bss_server_list_data.txt file.

- To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/bss_server_list_data.txt file.

2 Add one row for each billing support server. For example:

```
|SERVER_ID_BSS|SERVER_CONNECTION|DESCRIPTION
1|besdb2|testbed1,TORONTO|
```

3 Save and close the file.

**Configuring
acct_server_list**

The acct_server_list table creates a unique identifier for each accounting server in the system. The billing support server uses this identifier to identify the accounting server in related tables.

Table 109 acct_server_list Fields

Column Name	Description	Value
SERVER_ID_ACCT	A unique identifier for this accounting server.	Integer
SERVER_CONNECTION	The Oracle service name for the accounting server database (also called the TNS string, net service name, and service name).	String
DESCRIPTION	A description of this accounting server.	String

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/acct_server_list_data.txt file.

- To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/acct_server_list_data.txt file.

2 Add one row for each accounting server. For example:

```
|SERVER_ID_ACCT|SERVER_CONNECTION|DESCRIPTION
1|besdb1|testbed1, TORONTO |
2|besdb2|testbed2, Chicago |
```

3 Save and close the file.

**Configuring
bss_acct_server_map**

The bss_acct_server_map table associates a billing support server with an accounting server.

Table 110 bss_acct_server_map Fields

Column Name	Description	Value
DESCRIPTION	A description of this relationship.	String
SETUP_DATE	The date this entry was entered.	Date dd-mm-yyyy
SERVER_ID_BSS	A unique identifier for this billing support server. The SERVER_ID_BSS in this table must match a SERVER_ID_BSS in the bss_server_list table.	Integer

(continued)

Table 110   bss_acct_server_map Fields

Column Name	Description	Value
SERVER_ID_ACCT	A unique identifier for this accounting server. SERVER_ID_ACCT in this table must match a SERVER_ID_ACCT in the acct_server_list table.	Integer
FLG_COLLECT_REQ	Not used.	N/A

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/bss_acct_server_map_data.txt file.

- To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/bss_acct_server_map_ data.txt file.

2 Add one row for each billing support server/accounting server relationship. For example:

```
|DESCRIPTION|SETUP_DATE|SERVER_ID_BSS|SERVER_ID_ACCT|FLG_COL
LECT_REQ
BSS and Accounting server|19-NOV-2001 00:00:00|1|1||
```

3 Save and close the file.

Configuring job_collect_cdr   The job_collect_cdr table schedules the job that copies CDRs from the accounting server database. The billing support server may get CDRs from a single accounting server or from multiple accounting servers, depending on the configuration of the table.

Table 111   job_collect_cdr Fields

Column Name	Description	Value
JOB_ID	The unique identifier for the job.	Integer
JOB_NUMBER	This value is assigned by Oracle, not by user assignment.	N/A
JOB_TO_SUBMIT	The job name, usually a stored procedure name, such as CWU.UPLOAD.	string
JOB_NEXT_RUN	The next date/time the job will be run.	Date
(continued)		

Table 111 job_collect_cdr Fields

Column Name	Description	Value
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5 minutes. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour.	sysdate+Integer
CREATE_TIME	The date this entry was created.	Date
ACTIVE_STATUS	0 = Not active, the job this record represents will not be submitted. 1= Active, the job this record represents will be submitted.	0,1
CDR_NUM_PER	The number of CDRs to copy per time. If this field is left blank, the billing support server copies the maximum CDRs available when job executes.	Integer
DESCRIPTION	A description of this job.	String

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/job_collect_cdr_data.txt file.

- To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/job_collect_cdr_data.txt file.

2 Add one row for each scheduled job. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|CREATE_TIME|ACTIVE_STATUS|CDR_NUM_PER|DESCRIPTION
1||CWU.UPLOAD||sysdate+1/24*12||1|0|set collecting cdr job running per... period|
```

> **i** *Do not set more than one entry to ACTIVE_STATUS=1. Only the record with ACTIVE_STATUS=1 is submitted.*

> **i** *Assign the job_to_submit as* `CWU.UPLOAD`.

> **i** *Once a job has been submitted, the job interval cannot be changed. To change a job interval for a job that is already in queue, delete that job and then resubmit it.*

3 Save and close the file.

Configuring
job_delete_cdr

The *job_delete_cdr* table schedules the job that deletes/removes data from the database.

> *The **supercdr_hold** table (refer to Configuring supercdr_hold) overrides any data deletion. If the **supercdr_hold** table is configured to hold calls for a certain period of time, the CDRs are held until those conditions are met. remove the holding period and holding number limits, set both the HOLDING_PERIOD and NUM_LIMIT fields in the **supercdr_hold** table to 0.*

Table 112   job_delete_cdr Fields

Column Name	Description	Value
JOB_ID	The unique identifier for the job.	Integer
JOB_NUMBER	This value is assigned by Oracle.	N/A
JOB_TO_SUBMIT	The job name, usually a stored procedure name, such as CWDELETE.DELSUPERCDR.	string
JOB_NEXT_RUN	The next date/time the job will be run.	Date
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5 minutes. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour.	sysdate+Integer
DELETE_OLD_CDR	Not used.	N/A
DELETE_EXPORTED	0 = Do not delete crds that have been exported. 1 = Delete the cdrs that have been exported.	0,1
ACTIVE_STATUS	0 = Not active, the job this record represents will not be submitted. 1= Active, the job this record represents will be submitted.	0,1
SELECT_WHERE_CLAU SE	A SQL clause that defines special conditions for deleting the cdrs from the table. This field is not used at this time.	String
DESCRIPTION	A description of this job.	String

To edit the table:

1 Using a text editor, open one of the following files:

1 To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/job_delete_cdr_data.txt file.

  ■ To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/job_delete_cdr_data.txt file.

2 Add one row for each scheduled job. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|D
ELETE_OLD_CDR|DELETE_EXPORTED|ACTIVE_STATUS|SELECT_WHERE_CLA
USE|DESCRIPTION
1||CWDELETE.DELSUPERCDR||SYSDATE+1/(24*12)|1|1|SELECT...WHER
E CONDITION||
```

> **i** *Do not set more than one entry to ACTIVE_STATUS=1. Only the record with ACTIVE_STATUS=1 is submitted.*

> **i** *Assign the job_to_submit as CWDELETE.DELSUPERCDR.*

3 Save and close the file.

**Configuring
job_export_fields
_map**

The job_export_fields_map table establishes which CDR fields are exportable for each code source ID type. To export a specific CDR field for a specific code source ID, include an entry in this table.

Table 113   job_export_fields_map Fields

Column Name	Description	Value
CODE_SOURCE_ID	Source identifier code.	Integer
	This field maps to the **code_cdr_source_id** table in the CWCOM database.	
DDL_FLD_ID	Defines the CDR field ID.	Integer
	This field maps to the **ddl_cdr_fields** table in the CWBSS database.	
ORDER_IN_SRCID	The order in which the CDRs are output to file. This order is for each CODE_SOURCE_ID.	Integer
SUB_FIELD	not used.	N/A

To edit the table:

1 Using a text editor, open one of the following files:

■ To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/job_export_fields_map_data.txt file.

■ To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/job_export_fields_map _data.txt file.

2 Add one row for each job to cdr mapping. For example:

```
|CODE_SOURCE_ID|DDL_FLD_ID|ORDER_IN_SRCID
259|1|1|
```

3 Save and close the file.

Configuring job_export_supercdr

The job_export_supercdr table schedules the job that exports super CDRs.

Table 114 job_export_supercdr Fields

Column Name	Description	Value
JOB_ID	The unique identifier for the job.	Integer
JOB_NUMBER	This value is assigned by Oracle, not by user assignment.	N/A
JOB_TO_SUBMIT	The job name, usually a stored procedure name, such as CWE.OUTPUT.	string
JOB_NEXT_RUN	The next date/time the job will be run.	Date
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5minutes. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour.	sysdate+Integer
FILE_NAME	The name of the super CDRs output file.	String
FILE_PATH	The path to the output file. This path must already exist and be set up in the Oracle initialization parameter file.	String
COL_DELIMITER	The character that delimits each field in the output file. This can be any column separator such as a comma, '|', or short string.	String
ROW_DELIMITER	Not Used.	N/A
ACTIVE_STATUS	0 = Not active, the job this record represents will not be submitted.	0,1
	1= Active, the job this record represents will be submitted.	
SET_COMPLETE_INTERVAL	Not used.	N/A
SELECT_WHERE_CLAUSE	A SQL clause that defines special conditions for exporting super cdrs from the table. This field is not used at this time.	String
DESCRIPTION	A description of this job.	String

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/job_export_supercdr_data.txt file.

- To append data, open the
  /opt/3com/VCX/bss/db/cwbss/bulkload/custom/job_export_supercdr_d
  ata.txt file.

2 Add one row for each scheduled job. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|F
ILE_NAME|FILE_PATH|COL_DELIMITER|ROW_DELIMITER|ACTIVE_STATUS
|SET_COMPLETE_INTERVAL|SELECT_WHERE_CLAUSE|DESCRIPTION
1||CWE.OUTPUT|||SYSDATE+1/(24*12)|||||1|||This is desc field|
```

> **i** *Do not set more than one entry to ACTIVE_STATUS=1. Only the record with ACTIVE_STATUS=1 is submitted.*

> **i** *Assign the job_to_submit as* CWE.OUTPUT.

3 Save and close the file.

Configuring job_merge_cdr

The job_merge_cdr table schedules the job merges CDRs.

Table 115   job_merge_cdr Fields

Column Name	Description	Value
JOB_ID	The unique identifier for the job.	Integer
JOB_NUMBER	This value is assigned by Oracle, not by user assignment.	N/A
JOB_TO_SUBMIT	The job name, usually a stored procedure name, such as CWM.mergecdr.	string
JOB_NEXT_RUN	The next date/time the job will be run.	Date
JOB_INTERVAL	A configurable interval at which the job is run. The minimum value is 5 minutes. A value of sysdate+1 would mean that the job would run once in 24 hours. A value of sysdate+1/24 would mean that the job would run every hour.	sysdate+Integer
CDR_BEGIN	Not used.	N/A
CDR_END	Not used.	N/A
TIME_OUT_HOUR	The number of hours after which incomplete calls are marked as complete.	Integer

(continued)

Table 115 job_merge_cdr Fields (continued)

Column Name	Description	Value
ACTIVE_STATUS	0 = Not active, the job this record represents will not be submitted.	0,1
	1= Active, the job this record represents will be submitted.	
SELECT_WHERE_CLAUSE	A SQL clause that defines special conditions for merging cdrs. This field is not used at this time.	String
DESCRIPTION	A description of this job.	String

To edit the table:

1 Using a text editor, open one of the following files:

- To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/job_merge_cdr_data.txt file.

- To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/job_merge_cdr_data.txt file.

2 Add one row for each scheduled job. For example:

```
|JOB_ID|JOB_NUMBER|JOB_TO_SUBMIT|JOB_NEXT_RUN|JOB_INTERVAL|CDR_BEGIN|CDR_END|TIME_OUT_HOUR|ACTIVE_STATUS|SELECT_WHERE_CLAUSE|DESCRIPTION
1||CWM.MERGECDR||sysdate+1/(24*12)||48|1||CDR_begin and end
need update by BSS, select-clause is in doubt|
```

i> *Do not set more than one entry to ACTIVE_STATUS=1. Only the record with ACTIVE_STATUS=1 is submitted.*

i> *Assign the job_to_submit as CWM.MERGECDR*

i> *Once a job has been submitted, the job interval cannot be changed. To change a job interval for a job that is already in queue, delete that job and then resubmit it.*

3 Save and close the file.

Configuring supercdr_hold
The **supercdr_hold** table configures the rules for holding and purging super CDRs. The rules are set up on a per account type basis.

Table 116 lists the supercdr_hold fields.

Table 116   supercdr_hold Fields

Column Name	Description	Value
HOLDING_PERIOD	The amount of time to hold the CDR before purging it.	Integer
NUM_LIMIT	The maximum number of records to hold per user.	Integer
CODE_ACCT_TYPE	The super CDR account type. 1 = prepaid 5 = postpaid	Integer

To edit the table:

1 Using a text editor, open one of the following files:

■ To load data into an empty table, open the /opt/3com/VCX/bss/db/cwbss/bulkload/supercdr_hold_data.txt file.

■ To append data, open the /opt/3com/VCX/bss/db/cwbss/bulkload/custom/supercdr_hold_data.txt file.

2 Add one row for each hold rule. For example:

```
|HOLDING_PERIOD|NUM_LIMIT|CODE_ACCT_TYPE
1|100|5|
1|10|1|
```

3 Save and close the file.

F COMMON COMMANDS

This appendix contains information that is common to more than one component of the VCX V7000 IP Telephony Solution such as:

- Using the Database Bulk Load
- Back-end Server Configuration Tab Descriptions

Using the Database Bulk Load

This section provides information on how to bulkload data into the database tables. This section is common to the authentication and directory back-end servers (BES).

Each back-end server has its own identifier such as cwauth or cwdir. Throughout this section, where ever you see <schema>, type in the correct identifier as follows:

Table 117 <schema> Identifier

Back-end Server	<schema> Identifier
Accounting server	acct
Authentication server	auth
Billing support sever	bss
Directory server	dir

Use the text files in the /opt/3com/VCX/<schema>/db/<schema>/bulkload folder to indirectly edit the data in the databases. The besbulkload.pl script loads data from text files to a database table, appends data from text files to a database table, and clears a database schema.

This section provides information on the following:

- Editing the Text Files
- Loading Data into the Database

- Appending Data to the Database
- Clearing the Database

Editing the Text Files   Use a text editor to edit the individual text files. The first line of the file contains the column names, each preceded by a | (pipe). Each line following the first line is a row of data, with each field followed by a |. Enter a | for every field, even if there is no data for that field.

> **i** *If the text file contains default data (other than the column names), delete the data rows that do not apply to the system.*

Loading Data into the Database   Use this procedure to add data into empty tables. This procedure does not overwrite data or append data to non-empty tables. To overwrite data, first clear the tables (see Clearing the Database) and then use this procedure. To append data, see Appending Data to the Database.

To load the data into the database:

1 Log onto the directory server as **root**.

2 Change to the **/opt/3com/VCX/<schema>/db/<schema>/bulkload** directory.

3 Edit the besbulkfiles_<schema>.txt file. Every text file for each table listed is bulk loaded. Comment out any table that should not be bulk loaded by preceding the entry with a #. Remove the comment mark from any table to be bulk loaded.

4 Edit the selected text files in step 3 (the text files are located in the /opt/3com/VCX/<schema>/db/<schema>/bulkload directory). Each text file is related to the table of the same name. To set up the text files, see Editing the Text Files.

5 Change to the **cworks** user:

```
su - cworks
```

6 Change to the **/opt/3com/VCX/<schema>/bin** directory:

```
cd /opt/3com/VCX/<schema>/bin
```

7 Data loads for either one or all of the tables in a schema:

> **i** *To view the available options for the besbulkload command, enter* **besbulkload.pl -h**.

- To load data for all the tables in a schema, enter the following command:

```
./besbulkload.pl -s <ORACLE_SID_NAME> -n <schema> -p
<schema_password>
```

■ To load data for a single table, use the *-tab* option. Enter the following command:

```
./besbulkload.pl -s <ORACLE_SID_NAME> -n <schema> -p
<schema_password> -tab <table_control_file_name>
```

> **i** *To load files from a directory other than* /opt/3com/VCX/<schema>/db/<schema>/bulkload, *add the* ***-dpath <directory path>*** *option to the command.*

Several messages appear that list the name of each table as data is bulk loaded into each table. When the bulk loading is complete, a command prompt appears.

Appending Data to the Database

Use this procedure to append data to empty or non-empty tables.

To append data into the database:

1 Log onto the directory server as **root**.

2 Change to the **/opt/3com/VCX/<schema>/db<schema>/bulkload** directory.

3 Edit the besbulkfiles_custom_<schema>.txt file. Make sure that the text file for each table to be appended is listed. Comment out any table that should not be bulk loaded by preceding the entry with a #. Remove the comment mark from any table to be appended.

4 Change to the **/opt/3com/VCX/<schema>/db/<schema>/bulkload/custom** directory.

5 Edit the selected text files in step 3 (the text files are located in the /opt/3com/VCX/<schema>/db/<schema>/bulkload/custom directory). Each text file is related to the table of the same name. To set up the text files, see Editing the Text Files.

6 Change to the **cworks** user:

```
su - cworks
```

7 Change to the **/opt/3com/VCX/<schema>/bin** directory:

```
cd /opt/3com/VCX/<schema>/bin
```

8 Append the data by entering the following command:

```
./besbulkload.pl -s cwbes -n <schema> -custom
```

Several messages appear that list the name of each table as data is appended into each table. When the appending is complete, a command prompt appears.

Clearing the Database   Use this procedure to delete the data from all the tables in the <schema> database.

![i] *Once data is deleted it must be reloaded from the text files. See Loading Data into the Database.*

To clear an entire database:

1 Log onto the back-end server as **cworks**

2 Change to the **/opt/3com/VCX/<schema>/bin** directory:

```
cd /opt/3com/VCX/<schema>/bin
```

3 Clear the database schemas by entering the following command:

```
./besbulkload.pl -s <ORACLE_SID_NAME> -p <schema_password>
-clear
```

The **besbulkload.pl** script now has additional options. Table 118 lists all of the available options.

Table 118   besbulkload.pl Script Options

Option	Description
-cboff	Turns callbacks OFF for the schema_name.
	Note: This option is only available for cwauth and cwdir.
-cbon	Turns callbacks ON for the schema_name.
	Note: This option is only available for cwauth and cwdir.
-clear	Clears ALL the tables for the schema_name.
	This option reads the **clear_<schema>sql** file located in the **/opt/3com/VCX/<schema>/db/<schema>/scripts** directory.
-cleardata	Clears ONLY the data tables in the listed schema.
	This option reads the **clear_cwdir_data.sql** file located in the **/opt/3com/VCX/dir/db/cwdir/scripts** directory.
	Note: This option is only available for cwdir.

(continued)

Table 118 besbulkload.pl Script Options (continued)

Option	Description
-custom	Allows APPEND loading of the files listed in the **besbulkfiles_custom_schema_name.txt** file.
	The files must be located in the **/opt/3com/VCX/<schema>/db/<schema>/bulkload/custom** directory.
-dpath *<dir_path>*	The directory path containing the import data files.
	The *<dir_path>* defaults to **/opt/3com/VCX/<schema>/db/<schema>/bulkload** directory.
-h	Accesses the Help menu.
-loaddata	Loads ONLY the user data tables for cwdir.
	This option reads the **besbulkfiles_import_cwdir.txt** file located in the **/opt/3com/VCX/dir/db/cwdir/bulkload** directory.
	Note: This option is only available for cwdir.
-n *<schema_name>*	The database schema_name to perform operations on.
	The *<schema_name>* defaults to cwcom.
	The *<schema_name>* option can be:
	■ **cwauth**—authentication schema
	■ **cwcom**—common schema
	■ **cwdir**—directory schema
-org *<org_name>*	Loads the bulk data for a specified organization.
	Note: This option is only available for cwacct and cwcom.
-p *<password>*	The schema_name password.
	The *<password>* defaults to *besgroup*.
-r	Loads ONLY the required data tables for cwdir.
	This option reads the **besbulkfiles_cwdir_required.txt** file located in the **/opt/3com/VCX/dir/db/cwdir/bulkload** directory.
	Note: This option is only available for cwdir.
-s *<sid_name>*	The Oracle SID Name for the server database.
	The *<sid_name>* defaults to *bes24*.
-strip	Performs a **dos2unix** for all the data files for the schema_name. This works for UNIX platforms only.
-tab *<table_control_file_name>*	Loads ONLY a single database table.

Back-end Server Configuration Tab Descriptions

Enterprise Management Suite (EMS) contains several common configuration tabs. Most of these configurables must be set to their initial, default configuration.

Tab Location

These tabs are available for the accounting server, authentication server, and directory server.

To access these tabs:

1 From the EMS GUI, navigate to the *3Com VCX IP Telephony Server* within the *Equipment* folder.

2 Click on either the accounting, authentication, or directory server.

3 From the left-hand of the GUI, select the *Properties* tab (default).

3 Q Protocol Configuration

Use the *3 Q Protocol Configuration* tab to enable the proprietary 3Q protocol for the accounting, authentication, or directory server.

Table 119   3 Q Protocol Configuration Tab

Attribute	Description	Settings
3Qenables	Enable/disable the 3Q Protocol.	enabled
		disabled
ClientThread	Number of threads to receive data	Integer
		Range: 1- 4
ControlIPAddress	IP address of the UNIX workstation receiving Control Messages.	Read-only
ControlPort	Control port number.	Read-only
DatalPaddress	IP address of the UNIX workstation receiving data.	Read-only
DataPort	Data port number. DEFAULT = 1788	Read-only

BES Common Configuration

Use the *BES Common Configuration* tab to enable packet tracing for the accounting, authentication, or directory server.

Table 120   BES Common Configuration Tab

Attribute	Description	Settings
ClientActivityInterval	Keep alive interval in milliseconds. Default = 200000	Integer Range: 2000 - 200000
ClientReqThreads	Number of Application thread to process data	Integer Range: 1 - 4
LogLevel	The logging level that is supported by the Back End Server. Default = 0	Integer Range: 0 - 255
PacketTracing	Enable or disable packet tracing	enable disable
UseTrustedClientList	Whether the use of trusted endpoint list is enabled or disabled.	enable disable

BES Common Statistics

Use the *BES Common Statistics* tab to view common statistics for the accounting, authentication, or directory server.

Table 121   BES Common Statistics Tab

Attribute	Description	Settings
ServerUpTime	Server Up Time	Read-only
TotalDuplicateRequests	Total Duplicate Request	Read-only
TotalIncommingrequests	Total Incoming Request	Read-only
TotalInvalidRequests	Total Invalid Request	Read-only
TotalMalformedRequests	Total Malformed Requests	Read-only
TotalNumOfResponses	Total Number of Responses	Read-only
TotalPacketeDropped	Total Packets Dropped	Read-only
TotalPendingRequests	Total Pending Requests	Read-only
TotalUnknownTypes	Total Unknown Types	Read-only

Database Configuration

Use the *Database Configuration* tab to configure the basic database configuration for the accounting, authentication, or directory server.

Table 122 Database Configuration Tab

Attribute	Description	Settings
caETblIndex	Identifies the instance of a managed entity. The entry will be reserved for the same entity type for the time the agent has started, and attempts will be made to reserve consistency across reboots.	Read-only
Index	Database Index	Read-only
KeepAlive	Database Keep alive Timeout. Default = 20000	Integer Range: 20000 - 1000000
Name	Name of Database For example, cwbes.	String
ServerName	Database Server Name For example, cwbes.	String
UserName	Database User Name For example, cwdir.	String
UserPasswd	Database User Password	String

Flow Control Configuration

Use the *Flow Control Configuration* tab to view basic statistics for the accounting, authentication, or directory server.

Table 123 State Tab

Attribute	Description	Settings
Active Status	Indicates the current operational state.	enable disable
MaxCount	Max number of messages that can be queued or processed at any instant. A value of zero will disable Flow Control.	Integer Range: 0 - 150
MaxQueueFullTime	Max time in seconds that the queue will remain full. A value of zero will disable Flow Control.	Integer Range: 0 - 60

Identification   Use the ***Identification*** tab to view basic statistics for the accounting, authentication, or directory server.

Table 124   Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

State   Use the ***State*** tab to view basic statistics for the accounting, authentication, or directory server.

Table 125   State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only
Usage State	Indicates how busy the resource is.	Read-only

Index

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